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IMPROVEMENT IN SCOTCH SHIP BUILDING.

A feature of the Scotch ship building trade during September was the large number of contracts placed, even while there seemed little reason, judging by the condition of shipping, why owners should order new tonnage. Many vessels are laid up at different ports in the United Kingdom, and these would, it might be assumed, have found employment before others were ordered. Some owners, however, are evidently of the opinion that the trade improvement which they anticipate will be sufficient to absorb not only the vessels at present idle, but also a fair number of new steamers, while others doubtless consider that when the improvement does come they will reap most benefit if they have ships of the newest and most up-to-date character. Others again are of the opinion that the present is the best time for building, as prices are as low as they are likely to be, and that therefore it will be good business to put money in new tonnage before a rise comes. So it comes about that the contracts placed on the Clyde in September make the high total of about 120,000 tons, and that several of the Greenock and Port Glasgow yards, which have been very slack for months past, are now becoming quite busy. For the upper reaches, however, very few orders have yet been obtained, and all the large yards above Dunbarton are still very badly off for new work. Whether the "revival" is or is not a genuine trade improvement cannot yet be said with any degree of confidence, but meantime the contracts are very welcome in the yards, where, although they have in most cases been booked at low prices, they will do something to lessen the volume of unemployment in the lower district.

The contracts reported for Russell & Co., Port Glasgow, probably make a record for any firm within a similar period of time. The company are to build a steamer of 5,500 tons dead weight for Hope & Sloan, Glasgow; a large steamer for English owners; a cargo steamer of 7,500 tons dead weight for Marshall & W. L. Dobie, Glasgow; two small steamers of light draught for foreign owners; a steamer of 1,000 tons dead weight for M. Langlands & Sons, Glasgow; a steamer of 8,000 tons for Lang & Fulton, Glasgow, and two cargo barges, each 100 ft. in length, for foreign owners.

Scotts' Ship Building & Engineering Co., Greenock, are to build two steamers of 7,500 tons dead weight, and Charles Connell & Co., Scottstoun, three similar vessels, all to the order of James Gardiner & Co., Glasgow; Scotts Co., another steamer of 7,500 tons for other owners; the Greenock & Grangemouth Dock Yard Co., five steamers of fair size for the Russian volunteer fleet, and a tug 100 ft. in length for Buenos Ayres owners; A. Rodger & Co., Port Glasgow, a steamer of 7,500 tons carrying capacity for H. Hogarth & Sons, Glasgow; Robert Duncan & Co., Port Glasgow, a large cargo-carrying steamer.

The following table shows how the work of the nine months has been distributed over the different districts:

	Clyde.		Forth.		Tay.		Dee.	
	Ves.	Tons.	Ves.	Tons.	Ves.	Tons.	Ves.	Tons.
Jan.	8	1,969	2	260	2	383	2	180
Feb.	32	36,087	2	1,590	2	2,133	6	1,001
Mar.	26	22,020	9	2,630	4	6,357	5	452
April	30	43,670	1	1,300	2	7,280	13	1,183
May	25	11,072	..	.....	2	2,750	6	760
June	22	25,323	..	.....	..	.....	8	720
July	24	35,750	1	300	3	1,800	1	90
Aug.	19	48,002	2	700	1	300	3	635
Sept.	27	21,201	1	80	1	260	2	430
	213	245,102	18	6,860	17	22,263	46	5,513

In the Clyde tonnage the largest vessels were the Lund liner Waratan at Whiteinch and the Harrison liner Merchant at Scotstoun, while other noteworthy craft were the Brazilian destroyer Piauhy at Scotstoun, the last two of Messrs. Denny Bros.' first lot of British torpedo boats, and another large train ferry at Pointhouse for South America. Other interesting points about the month's work on the Clyde are that the three largest vessels were built at Whiteinch and Scotstoun, and that with the exception of these three all the tonnage was for foreign and colonial owners. The Clyde figures since 1880 are:

Year.	Sept. Tons.	9 mos. Tons.	Year.	Sept. Tons.	9 mos. Tons.
1908..	21,201	245,102	1894..	36,760	245,025
1907..	37,268	458,351	1892..	38,755	274,746
1906..	46,366	462,277	1891..	20,210	216,677
1905..	45,546	359,643	1890..	30,897	254,070
1904..	43,203	293,571	1889..	40,500	239,195
1903..	27,223	299,940	1888..	35,805	184,335
1902..	53,045	362,287	1887..	17,220	146,800
1901..	38,920	369,046	1886..	29,401	141,896
1900..	33,975	327,925	1885..	16,521	134,029
1899..	44,519	334,274	1884..	36,589	219,888
1898..	38,149	287,557	1883..	31,450	293,023
1897..	14,053	207,209	1882..	42,649	264,743
1896..	36,236	276,452	1881..	29,021	242,063
1895..	35,867	263,000	1880..	24,510	173,220

Harland & Wolff, Belfast, Ireland, will launch the 18,000-ton steamship building for the Atlantic Transport Co. in November. So soon as she is off the ways another and larger vessel will be laid down in her berth. The slip just vacated by the White Star liner Laurentic is now being used to lay the keel of a big steamship for the Australian-United Steam Navigation Co. Night and day shifts will be employed on this vessel as it is promised for early delivery. In addition the company has an order for a large Belgian Red Star liner. Altogether the ship building outlook at Belfast for the coming winter is brighter than for several years past, although at no time giving much cause for complaint. The Scott ship building and engineering firm has also just contracted to build and engine two cargo steamers of 7,500 tons deadweight each for Glasgow owners.

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LARGER JAPANESE MERCHANT MARINE.

In 1870 the first large steamship company was established in Japan, under the name of the Kwaiso Kwaisha (the Transport Co.). This company, under government auspices, underwent various changes, its name in time becoming Nihonkoku Yubin Jokisen Kwaisha (Japan Mail Steamship Co.). In 1871 a rival company appeared on the scene, organized by the late Baron Yataro Iwasaki, under the name of Mitsu Bishi Kwaisha (Three Diamonds Co.), says *Engineering*.

This company did such excellent work for the government during the military expedition to Formosa in 1873-74 that it was deemed advisable by the authorities to lean largely upon it for support, wind up the affairs of the officially directed company, and close the keen competition that had sprung up between the two; the ships of the Nihonkoku Yubin Jokisen Kwaisha were, therefore, in 1876, transferred to the Mitsu Bishi Kwaisha, and the latter company strengthened in other ways. The combined fleet of this company then consisted of 42 ships, six of them sailing vessels, and the remainder steamers of various sizes, 12 exceeding 1,000 in gross tonnage. In 1882 the company further strengthened itself and added steamers capable of performing the functions of both transports and cruisers, a stipulation being made by the government, in return for privileges conceded, that it was to have the use of the ships, in case of need, on the payment of some 5 yen per ton per month.

In 1882 the gross tonnage owned by the Mitsu Bishi Kwaisha was 22,000. In the same year, with the object of increasing the mercantile marine, government support was afforded to a new company, the Kyodo Unyu Kwaisha (Union Transportation Co.), so that two companies, rivals along certain lines, were again in the field, both obtaining assistance from the state funds. This lasted until 1885, when an amalgamation was made, and the now powerful Nippon Yusen Kabushiki Kwaisha (Japan Mail Steamship Co.) formed by the combination of the two.

To the newly formed Nippon Yusen Co. a dividend of 8 per cent was guaranteed by the state; but this was committed, in 1887, to an annual subsidy of 800,000 yen. In the Chinese war of 1894 the large steamers of the company were all requisitioned by the government, and many more were purchased by the company both for government needs and to maintain its own trade. On the conclusion of the war, and encouraged by the new bounties, the Nippon Yusen Kwaisha resolved on a large expansion of its work and influence; it raised its capital to 22,000,000 yen, and established regular services to America, Europe and Australia, in addition to the existing line to Bombay. Large steamers, 12 of them exceeding 6,000 tons, were ordered, mostly from the Clyde, though with the reserve of a sufficient number for Japanese construction to develop the art of ship building at home. Since that date the company has frequently added to its fleet, its new ships being, in recent years, all built in Japan—although these have been supplemented by the ships purchased during the war with Russia and the captured ships taken over from the government after the termination of the war. Among those recently built in Japan, the Hitachi Maru, 6,715 gross tons, for the European service; the Nikko Maru, 5,539 tons, for the Australian service; the Tango Maru, 7,463 tons, for the American service, and the six ships of the Kamo class, each of 8,770 tons, now completing, and to be employed as general traders, may be specially mentioned.

When the latter are completed the company's fleet will consist of 85 vessels of a total tonnage of 313,627. The capital of the company is 22,000,000 yen.

In 1884 the Osaka Shosen Kabushiki Kwaisha (Osaka Mercantile Steamship Co.) was established, and received from the first some measure of government support. The capitalization is sixteen and a half million yen. The company now owns 107 vessels of a total tonnage of 107,013, but it is on the eve of development in the direction of the establishment of a regular freight service with America, for which purpose six steamers (each of 6,000 gross tons) are at present under construction in Japanese ship yards.

The Toyo Kisen Kabushiki Kwaisha (Oriental Steamship Co.) was established in 1896. Its first three steamers were built in England, and created a Japanese service with San Francisco, making occasional runs to Mexico and other ports. It now owns eight vessels of 53,065 gross tonnage. Recent developments have necessitated an increase of capital to 13,000,000 yen. The two great strides this company is making at the present time are, on the one hand, the construction of the Tenyo Maru (now running), the Chiyo Maru, and another steamer, all of 13,500 gross tons, and furnished with Parsons turbines, to give a speed of 19 knots; and on the other hand, the use of oil fuel, both in the large vessels just mentioned, and in the other branches of the company's work. In this connection the company has recently purchased three tank steamers of Tyne build, and is building two more (of 9,320 gross tons each) at Nagasaki. The three turbine steamers are for the Hong Kong, Yokohama and San Francisco run.

The three large companies thus far referred to have a certain importance from another circumstance not yet mentioned, viz., that they receive each year definite subsidies for prescribed services which they undertake. Until last year there were three other small companies doing regular services round the coasts of Japan, to, from and in China, and to and from Korea, which were the beneficiaries of similar subsidies. These companies were the Konan Kisen K. K., the Daito Kisen K. K., and the Oya Shosen Goshi Kwaisha. Last year the two former of these companies passed into a new combination, together with some vessels hitherto belonging to the Osaka Shosen K. K. and the Nippon Yusen Kwaisha.

This new company is styled the Nisshin Kisen K. K., and possesses 14 steamers in all, with an aggregate gross tonnage of 29,347. The Oya Shosen K. K. has five steamers, of 8,415 tons. The other most important ship owners of the country, whether companies or individuals, are the following:

Mitsu Bishi Goshi Kwaisha, with 13 steamers, of 13,292 aggregate gross tons.

Mitsui Bussan Gomei Kwaisha, with 29 steamers, of 28,827 aggregate gross tons.

Ojiro Goshi Kwaisha, with five steamers, of 12,498 aggregate gross tons.

Tatsuura Shokwai, with nine steamers, of 17,289 gross tons.

Ukon Gonyemon, with seven steamers, of 16,108 gross tons.

Oaki Kikusaburo, with 14 steamers, of 22,257 gross tons.

Hiromi Nisaburo, with 10 steamers, of 24,545 gross tons.

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DECREASE IN PASSENGER REVENUES.

The resumption by the White Star Line of its full cargo service has given, sentimentally at least, a better tone to the ocean freight market, though leaving much to be desired. Some steamship interests would undoubtedly be inclined to make the paragraph read "though leaving 'everything' to be desired;" for the sentimental improvement does not yet appear to have reached a particularly practical or profitable basis. Grain accommodation to Liverpool and London, which may be regarded as the standards for berth room accommodation, is offered at 1½d., which as an open asking price is particularly low. There has been some increase in the demand for wheat accommodation for the regular line steamers for future months, but the demand for corn is particularly backward.

Not only have the steamship lines had a particularly bad freight year, but the passenger business shows a spectacularly heavy decrease. Details are available for the year and show a decrease in the westbound passenger movement comparing with 1907 of 7,289 first class passengers, 49,099 second class passengers and of 791,416 steerage. In the eastbound movement there is a decrease of 3,373 first class, but an increase of 2,785 second class and of 244,666 steerage, the two last named items reflecting the departure of laborers on account of the industrial and business depression. Combining the east and westbound movements the figures to date show the following decreases compared with last year:

	1908.	Decrease from 1907.
First class	151,646	10,662
Second class	211,515	46,314
Steerage	836,702	542,750

It will thus be seen that notwithstanding the enormous outgo of labor the steamship returns, even for second cabin and steerage, are far below those of 1907. It is believed that $100 will be a low figure for an average first class ticket; $45 for a second class ticket, and $25 for a steerage ticket. On this basis the deficit in steamship passenger revenues for the year thus far would be:

First class, 10,662 at $100	$ 1,066,200
Second class, 46,314 at $45	2,084,130
Steerage, 542,750 at $25	13,568,750
Decrease from 1907	$16,719,080

There is thus a deficit of $16,719,080 in passenger revenues, comparing with a year ago, and what, with practically unprecedented dullness in the freight business, the steamship companies will undoubtedly have some particularly poor statements for stockholders this year.

Cable advices claim that Herr Ballin, of the Hamburg-American Line, has opened negotiations with the chief British steamship lines with a proposal for co-operation of sailings of the fast liners of the various companies across the Atlantic in order to limit the building of more costly express vessels by rival companies. Herr Ballin, it is said, sent a detailed account of his scheme to the British lines some time ago, and the matter will be discussed at a shipping conference in the near future.

So far as the German steamship lines are concerned, the following review by Herr Wiegand, general director of the North German Lloyd, in the *Frankfurter Zeitung*, will be read with interest:

"There is no department of industry, he considers, which has been so much affected by the depression of trade now succeeding the boom period as that of the German shipping trade. It had developed magnificently during the boom and made continual provision to take advantage of it by the building of new ships. Our two greatest companies alone, he says, the Hamburg-American and the Norddeutscher Lloyd, now have at their disposal a mighty fleet of 313 ocean steamers, with an aggregate stowage capacity of 1,648,682 tons. At the end of 1900 the book valuation of the ships belonging to the two companies aggregated £11,294,000, at the end of 1905, £15,632,500, and at the end of 1907, £18,093,500, that nothing was left undone to profit by the rising tide of trade. The greatest net profits fell to the Hamburg-American in 1905, with a record of £1,807,000; in the year 1906 the figure was £1,610,000, and in 1907 £1,261,500, the dividends distributed during the three years being at the rate of 11, 10 and 6 per cent, respectively. The growth of the North German Lloyd ran along somewhat different lines, its record net profit of £1,836,500 and 8½ per cent dividend (as against 7½ per cent and 2 per cent in the two preceding years) being only reached in 1906. In the following year the net profits fell to £1,473,000, and the dividend was reduced to 4½ per cent. These figures show that the reaction in business, which first took place in the United States and was thence communicated to Europe, had already produced evil results in the business done by the shipping companies; since November last this evil effect has increased, with the serious falling off in passenger traffic.

"What made matters so bad was that the trade depression was general—scarcely a country, except perhaps Australia and Africa, being exempt from it—and came just at a time when a large policy of extension had been carried out by our German companies. The establishment of new lines all over the world was defended by them on the ground that if any of the old lines under their control suffered from the evil of divided attention, the loss would be more than made up from the new undertakings. This contention was nullified by the generality of the depression; every line, old and new, was affected simultaneously; and not only in the case of German, but also in that of foreign shipping companies. The writer of the article has been assured in likely quarters that so far as passenger traffic goes scarcely any company, whether German or otherwise, has earned enough during the course of this year to fully cover the amount it has to write off for depreciation. The falling off in passenger traffic is made clear by the emigration figures for the past few years."

LARGE DOCKS PLANNED FOR RIO DE JANEIRO.

When the extension of its dock system has been completed in accordance with the plans now in hand, Rio de Janeiro will have the greatest dock system of any port in South America, embracing a frontage of 12 miles.

Under present contracts the plans provide for the building of an extension of ten miles of docks to the two miles already provided for, this additional dockage being secured by building piers at right angles to the shore to the north of the present docks, which are constructed as a curved frontage on the bay without slips or piers. Three great piers will be built at a distance of 1,115 ft. from each other.

Consul-General Anderson reports that the plans approved by the Brazilian government doubtless will be carried out, provided the money can be secured. It is estimated that the extensions planned will add about $19,500,000 to the cost of the work.

The average annual tonnage at Rio for the last three years has exceeded 2,000,000. The docks now being constructed in Rio are owned by the federal government of Brazil, which has decided not to operate them itself, but to lease them to private parties, who will manage and control them under government regulations.

The Ward Line steamer Monterey, while lying at Havana, Cuba, was discovered to have a fire in her hold. The blaze was confined entirely to the cargo which was damaged to the extent of $50,000, the loss being covered by insurance.

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DEPRESSION IN SHIPPING.

H. E. Moss & Co., Liverpool, speak very encouragingly of shipping conditions in general in their latest semi-annual circular, saying:

"The anticipations as to the prospects of steam shipping and ship building predicted in our last semi-annual circular have been more than fulfilled; but as unsatisfactory as they were then, they are far worse today, in fact during the half century we have been accustomed to write these lines, the times we are now passing through are the worst on record. In former years these cycles of depression in shipping were not so universally felt, for in some parts of the world payable employment was obtainable. All this has arisen, firstly, through the recent financial crisis in America, which adversely affected commerce in all directions, and set nearly everything on the downward grade; then we have had the record building of tonnage during recent years, together with ill-advised legislation as to increased freeboard; then, lastly, the disappointing harvests abroad, which, coming together, have contributed to bring about the present state of affairs. In our opinion so many combinations are not likely to occur simultaneously again for many years to come, at least in steam shipping. What interests us presently is as to the future. Shipping, we all know, is the first to feel the effect of depression in trade, but the last to benefit by any improvement. The present crisis has been so acute we should think the reaction will be all the sooner. If trade is bad in the United States it reflects on this country in particular, and vice versa. It is said there are already indications of improvement in America, but this will have to extend to German and other continental centers before the lessened output of new tonnage will again equalize the everlasting problem of supply and demand. The reports of the coming harvests in the United States, in Canada, and in India, are most encouraging, and we should think will help to relieve the market in the autumn, and by next year we should expect to see the beginning of some improvement in shipping.

"The amount of mercantile tonnage under construction on June 30 last was about 800,000 tons, being fully 450,000 tons less than a year ago, and is the lowest total recorded since 1896. We should estimate the total amount of new tonnage to be turned out in the United Kingdom this year at about 1,200,000 tons, which, compared with about 2,000,000 tons in 1907, and about 1,600,000 tons in 1906, should ameliorate the situation.

"The depreciation in the value of steam shipping has been appalling; new cargo steamers of about 7,000 tons dead weight capacity presently building, and which a few years ago easily realized £48,000, have recently been sold at £35,000, or about £5 per ton dead weight, and at this price steamers of similar tonnage with moderate specifications can be built today, and other sizes in proportion.

"Second-hand steamers have depreciated to a greater extent, and some steamers of about 6,000 to 7,000 tons have been sold at about half their cost four or five years ago. Very little business has been done during the last six months, for though the supply of tonnage is great, buyers are scarce and transactions are difficult to carry through. In spite of all this forced sales have been but few.

"Shipbuilders are feeling the pinch most acutely, many yards are empty and but few are partially occupied, mostly with liners and special types of steamers. The competition for new orders is exceedingly keen, and is likely to be more so as the work in hand is completed. Whether the price of steel and coal will fall further is an open question. We should think it will likely do so, but ships are very cheap to build now and should attract buyers. That the present is a favorable opportunity for men with capital to buy or build with late delivery and wait developments goes without saying.

"Why the employes in the ship building trade recently struck work, and the engineers on the northeast coast still remain out on strike under existing circumstances, is beyond comprehension. They have misjudged the time. It should have occurred two or three years ago.

"The new turbine steamers of the Cunard Co., the Lusitania and Mauretania, have proved an unqualified success, and demonstrated, without doubt, that the turbine for fast passenger steamers has come to stay, and is now being generally adopted in our coasting trades where speed is necessary, for which several steamers are presently building."

A company is reported to be organizing for the purpose of constructing and operating dry docks at Montreal, St. John, New Brunswick, and other Canadian ports, with which the names of R. Bickerdike, of Montreal, and J. F. Stephens, of New York, have been connected. The name of the proposed company is to be the National Dry Dock & Ship Building Co., and it is to have a capitalization of $50,000,000. The site for a repair dry dock is said to have been chosen at Montreal.

INSIDE A SUBMARINE.

Climbing down 10 rungs of an iron ladder into the interior of a submarine is like going into a boiler shop where there is one continuous, deafening, ear-splitting racket, like a dozen trip hammers clattering a tattoo amid a grind and rumble and thump of machinery as if especially designed to burst your ear drums. At first the noise in that narrowly confined space is painful and bewildering. To make yourself at all heard you must shout into the ear of a companion. So intense is the strain that you marvel how day in and day out human ears can withstand the ordeal.

You find yourself inside what seems an enormous steel cigar, painted a neat pearl gray, a color which is serviceable and does not dazzle the eye. Light comes to you partly through portholes, and in part from incandescent lamps placed fore and aft in the darker parts of the hull. You have expected, of course, to land in a tangle of whirling machinery that fills the inside of the boat from stem to stern, threatening with every revolution to take an arm or a leg off. Instead, the first thing you see is an uninterrupted "working space" or deck, measuring 7 ft. by 25 or 30 ft. At the stern, says *St. Nicholas,* far in the background, are the machines and engines; in fact, this section of the vessel is nothing but machinery, a rumbling mass of silvery steel and glittering brass revolving at the rate of 500 times a minute, so compact that you wonder how the various parts can turn without conflicting, or how it is possible for human hands to squeeze through the maze to oil the machinery.

But this economy of space is as nothing to what you will see. The floor you stand on is a cover for the cells of the storage batteries wherein is pent up the electricity with which your boat will propel herself when she runs submerged. The walls amidships and the space on the bow are gigantic ballast tanks to be filled with water that will play a part shortly when you get ready to dive. The four torpedoes, measuring 16 ft. 3 in. long, 18 in. in diameter, and weighing 1,500 lb. each, are lashed end for end in pairs at either side, and directly over these are tool boxes and hinged bunks for the crew to sleep in. The very air which is taken along to keep life in you in case the boat should be detained beneath the surface longer than usual, is compressed in a steel cylinder to 2,000 lb. per sq. in.—a pressure so intense that were the cyl-

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inder to spring a leak no larger than a pin hole, and were the tiny stream of escaping air to strike a human being, it would penetrate him through and through and drill a hole through an inch thick board behind him. And yet everything about the interior arrangements of this boat is so simple that you can see at a glance its purpose. Away forward, where the tip of the cigar comes to a point, are the two torpedo tubes out of which the gunner will send his deadly projectiles seething beneath the waters at the rate of 35 knots an hour against an unsuspecting hull. Directly under the conning tower is a platform 3 ft. square and elevated 3 ft. from the deck, upon which the captain stands, head and shoulders extending into the tower, so that while at his post he is visible to the crew only from the waist line down; and at the feet of the captain, and on a level with his platform, is the station of the second in command, in charge of the wheel that controls the diving rudders and the gages that register the angle of ascent and decline, and show how deep the boat is down. The two officers are in personal communication, so that in case of heart disease or other mishap either can jump to the other man's place.

OHIO RIVER IMPROVEMENT.

Tuesday, Oct. 13, the members of the Cleveland Chamber of Commerce listened to an address on the project for the improvement of the Ohio river by Albert Bettinger, who said:

"We have all the conditions precedent for appropriations by congress authorizing the whole work to be constructed as rapidly as can be. It has been announced by the committee on rivers and harbors, by the president at the governors' conference held in May last, and in messages to congress, by Mr. Taft in his address to the lakes-to-the-gulf convention in Chicago recently, that no project should hereafter be commenced until it has the unqualified approval of the engineers' department. Such is ours.

"An improvement once commenced the whole amount necessary for its completion shall be appropriated and the work pushed to completion without delay. Such is ours. In addition the Ohio river has a present commerce of 13,000,000 tons annually. From the Ohio river comes all the tonnage that passes down the Mississippi to New Orleans. From a commercial point of view the Ohio river and the Mississippi below Cairo constitute but a single stream.

SENATOR LODGE ON THE NAVY.

United States Senator Lodge of Massachusetts made a strong plea for a larger navy in an address at the Republican ratification meeting held in Boston on Oct. 12. Some striking excerpts from his speech follow. "We need no larger army. We have no fear of our neighbors—our friends and kindred on the north and our friends to the south. All we need of the army is that it should be a first-rate army of its size, thoroughly organized, armed and prepared.

"But when we turn to the other force we confront an entirely different situation. If there is ever to be a great war—which God forbid—in which the United States should be engaged, that danger would come across the seas, and the protection and defense of the United States is on the ocean. The United States navy should be maintained not only at the highest efficiency, but in ample numbers to give complete protection to both coasts. The Pacific is as much our coast as the Atlantic, and neither should go unprotected.

"Now we have had a great deal of discussion of late, both in the newspaper and in congress, about additions to the navy. It has been depicted by some persons as ridiculously small and others who seek sensation rather than truth have depicted it as hopelessly weak as it now stands. Others have pictured the navy as an enormous, overwhelming force. There is nothing to be gained by misrepresentation in either way, and now I will state what the navy is and just what it needs, and I want the Republican party retained in power among many other reasons, but among the chief reasons because it is the policy of that party to keep the navy of the United States where it ought to be kept.

"We have fewer officers than have much smaller navies. Now, as I state these facts to you, it appears that the United States is today the second naval power in the world in warship tonnage and in sea strength, even after making all due allowance for our shortcomings in the way of torpedoboat destroyers.

"Those other naval powers which at present rank below us have six and more of these great new ships, of which the Dreadnought is the type, built or building. We have only two building and two authorized, and unless we follow in this type of ship in five years the United States will drop to the fifth place in the navies of the world. That is not the place we ought to occupy. We have none too large a navy now."

"Notwithstanding all these conditions waterway improvement projects in all parts of the country are being urged upon congress, and there are those who for one reason or another claim priority over the Ohio river improvement. While our case is clear, we must push it. We must do it by holding the largest convention at Louisville in the history of the movement. The business men must make their interest apparent by attendance and active participation, so that congress may know that the public are demanding the improvement.

"Unless this is done we may lose the results of 14 years of hard work, and we may yet see similar improvements, more recently projected, not yet begun, gain precedence in construction over the Ohio river."

He was followed by Major Wm. J. Seibert, of the United States Army Engineers' Corps, one of the engineers who surveyed the Ohio for congress, and recently submitted a report stating that of all internal waterways the Ohio is "the river" that is worthy of most attention at once. He said that with the completion of the Panama canal and the canalization of the Ohio river freight can be moved from this valley to San Francisco at from $5 to $8 a ton, while it now costs from $13 to $30 a ton.

NEW DRY DOCK AT PORTLAND.

The Oregon Dry Dock Co., Portland, Ore., which was incorporated for the purpose of constructing and operating a floating dry dock designed to accommodate vessels of 4,000 tons and under, is at present actively engaged in building its new dock. The dock will be located near the present works of the Willamette Iron & Steel Works, with which concern the dry dock company is closely affiliated.

The new dock is 285 ft. long over the body with a total length, including overhanging aprons, of 340 ft. Its overall width is 77 ft. and its capacity about 4,000 tons. It will be an important addition to the marine equipment of Portland harbor, since it is the only one small enough to handle 4,000-ton ships and under with economy. The only other dry dock on the Willamette river is the port of Portland dock, which is located at St. Johns and has a capacity of 10,000 tons.

The officers of the Oregon Dry Dock Co. are: Wm. H. Corbett, president; Wm. L. Brewster, vice president; Alvin Boody, secretary and treasurer.

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DRESSER CASES SETTLED.

The 10 suits brought against the Mercantile Trust Co. and others interested in the promotion of the United States Ship Building Co., by D. Leroy Dresser, president of the defunct Trust Co., of the Republic, of New York, have been settled out of ocurt.

Among the individuals sued were John J. McCook, Charles B. Alexander, James H. Hyde, Alvin W. Krech and John W. Young. Mr. Dresser demanded $2,100,000. He got $150,000 out of which must be paid counsel fees and claims of sundry creditors to whom, though he has been discharged in bankruptcy, Mr. Dresser has voluntarily offered to make good.

Mr. Dresser's statement of the compromise was given out by his attorney, Frank Sullivan Smith, as follows:

"As a result of an exhaustive examination of the complicated facts of this case I have been advised that I am unable to establish the charges on which I have been insisting. Of the 10 suits that have been dismissed today 8 were brought in my name. Seven of the 8 were brought by me as the assignee of my former partner and others in whose names ship building bonds were underwritten. The other case was brought in my own behalf to recover about $1,200,000, including interest. In the last mentioned case the defendants have at all times persistently and consistently refused to consider any proposal of settlement or to vary from the position that they would not pay a penny but would fight to a finish against the charges that were made in that case."

PAN-AMERICAN SENTIMENT ON THE PACIFIC SIDE.

At a meeting of fifty representative business men of San Francisco recently, Mr. John Barrett, director of the International Bureau of the American Republics, suggested that the Chamber of Commerce and allied commercial organizations of San Francisco hold a Pan-American Pacific commercial conference in either 1909 or 1910. The suggestion has been very enthusiastically received, and those present at the meeting pledged themselves to see that the idea was carried out. The purpose of this conference will be to develop trade and promote more intimate association among the American republics.

Mr. Barrett said in part:

"The practical value of the exchange of ideas upon ways and means of building up trade of the Pan-American Pacific coast, and of aiding each section to get into closer touch with the others, cannot be overestimated. The hospitality which this city could offer to the fifty or one hundred Latin-American business men who might come up here, would make a deep and abiding impression on them.

"The information they would gain about what you had to sell, and the data they could give you as to what they want to buy and sell, together with the consideration of improved steamship and mail facilities, and the general exchange of opinions through reports, newspapers, and other channels, would surely bring great advantage to all the cities and countries represented. Let San Francisco, as the best known city on the Pacific, lead the way in this new crusade for the advancement of Pan-American commerce and comity."

SUGGESTS SUEZ ROUTE.

J. C. Stubbs, traffic manager of the Harriman lines, in a letter to *Fibre and Fabric,* explains the overland situation as regards Asiatic trade as follows:

"With respect to the Asiatic trade: The laws of this country as construed by the interstate commerce commission increase the difficulties of the trans-continental lines in their undertaking to carry this business. Nevertheless the Suez route is open, is not governed by the interstate commerce law or the rulings of the interstate commerce commission, and, I presume, is able to supply all necessary means of transportation. Therefore I do not think that the question of transportation rates enters very largely into the question of competition between United States manufacturers of cotton goods, and European manufacturers of the same goods. The force of that competition, it seems to me, has reached the climax. What may be expected, or may be feared, from the undertakings of the Japanese and Chinese to import raw cotton and themselves manufacture the fabrics, you are better able to judge than I. I do not apprehend any influence upon this traffic by the trans-Siberian railroad or the completion of lines in eastern Asia."

There are now six complete moveable dams on the Upper Ohio river extending from Pittsburg below the mouth of the Beaver river. They are the first ones in operation of the series that has been projected for the improvement of the Ohio river. The fixed dams, Nos. 2 and 3, on the Allegheny river have also just been completed, so that Pittsburg now has slack-water extending about 128 miles up the Monongahela river, 25 miles up the Allegheny and 29 miles down the Ohio.

REGARDING THE SUBMARINES.

Some weird stories have been told of the trip of the submarines Octopus, Viper, Tarantula and Cuttlefish from the navy yard, New York, to Philadelphia, Pa., under convoy of the Scorpion. While the boats are not comfortable craft under the best of circumstances, the experiences of the vessels during the voyage from New York to Philadelphia, Pa., which appeared in the daily press were grossly exaggerated. According to these stories the little craft underwent a most hazardous experience in a storm off Sandy Hook Thursday, Oct. 8, which no one discovered except the local color artist who writes tales of the sea. The holds, it was said, were awash with sea water, which in combination with the batteries and machinery generated a noxious gas which all but smothered the crews. The Viper and the Tarantula, it was said, became separated from the rest of the fleet and great anxiety was felt during the hours that elapsed before they were picked up. The crews, it was reported, had little food and no sleep during the entire trip, so precarious was the situation. As to how much truth there was in the stories can be judged from an official report from Lieut. Charles E. Courtney, U. S. N., commanding the second torpedo flotilla, covering the endurance run. He states that the voyage consumed about 58 hours, of which 12 were spent at anchor at the Delaware Breakwater, and that about seven hours' time was lost on account of fog. He further states there was no rough weather or high wind whatever, that the vessels and crews were never in the slightest danger, that nobody was forced to stay below, that the conning tower hatches were open throughout the trip and the men moving around freely on deck, that no person showed any effect of poisonous gases at any time during the trip, and that none of the submarines was ever flooded with water in her interior. A report from the commanding officer of the Plunger states that that vessel left Newport at 6 P. M., Tuesday, Sept. 26, and proceeded under her own power throughout the trip, arriving at Philadelphia at 5 P. M., Thursday, Sept. 30. Rough weather was experienced throughout the trip, but the boat proved herself seaworthy, and her machinery functioned satisfactorily and without mishap. Total distance covered, 345 miles; time, 47 hours; average speed, 7.3 knots.—*Army and Navy Journal.*

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SHIP YARD NOTES.

Tietjen & Lang, Hoboken, N. J., are making extensive repairs to the government dredge Raritan.

The New York Ship Building Co., Camden, N. J., launched the revenue cutter Yamacraw last week. She will be stationed at Savannah, Ga.

A. C. Brown & Son, Tottenville, N. Y., are building a tug for the Packard Dredging Co., of Providence, R. I., which is 100 ft. long, 25 ft. beam, and 11 ft. deep.

The Nilson Yacht Building Co., of Baltimore, is building a 65-foot gasoline cruiser for Mr. Carleton Slagel of that city, who will enter her in the Bermuda race next summer.

Oliver Reeder & Sons, Baltimore, Md., have recently launched a lighter for the Empire Coal Co. She is 90 ft. long, 28 ft. beam, and 8 ft. deep.

The Bath Iron Works, Bath, Me., are to launch the turbine steamer Belfast this week. She is a sister ship to the Camden, also owned by the Eastern Steamship Co.

Harlan & Hollingsworth, Wilmington, Del., will launch the first of the four steel steamers which they are building for the Central Railway of New Jersey today. She is named the Bayonne.

McIntyre & Henderson, Baltimore, Md., are engaged in overhauling the machinery of the United Fruit Co.'s steamer Barnstable. She is preparing for the winter passenger trade between Baltimore and Jamaica.

King & Winge, Seattle, Wash., are giving the steamer Reliance, owned by the Kitsap County Transportation Co., an extensive overhauling. New guards have been put on her, as well as other repairs to the hull.

Hall Bros., Winslow, Wash., recently repaired the Alaska liner Humboldt, which went ashore on Pender Island in a fog. The Humboldt is owned by the Humboldt Steamship Co., of Eureka, Cal. The damage was to her keel and fore foot.

The Sharptown Marine Railway Co., Sharptown, Md., recently launched a barge for the P. Dougherty Co., of Baltimore, for use in the coasting trade. She is 200 ft. long, and 35 ft. beam.

The burning of the Hudson River Day Line steamer New York last week will make it necessary for that company to provide another vessel for next season. From present indications it seems probable that a companion boat to the new Hendrick Hudson will be contracted for immediately, to be christened the Robert Fulton. The company had previously contemplated the building of such a steamer and the designs had been prepared by Frank E. Kirby for a steamer 400 ft. long, 43 ft. beam, 82 feet over guards and 14 ft. 4 in. depth of hold, to be propelled by an inclined double-expansion paddle engine, steam being supplied by eight steel cylindrical boilers. The cost of the new vessel will be over $1,000,000.

William E. Woodall & Co., Baltimore, Md., are practically rebuilding the schooner Henry H. Pitts, owned by William B. Diggs, of Baltimore. The schooner John A. Curtis is also at this yard for extensive repairs. She is owned by Edwin D. Stevenson, of Baltimore, and like the Pitts is a Bay trader.

Mr. Percy G. Tuthill, formerly with the Greenport Basin & Construction Co., Greenport, N. Y., has been made manager of a large ship yard which is to be established at that port by a New York capitalist who has not as yet made himself known. Negotiations are now in progress for the purchase and erection of the necessary equipment.

Sloan Bros., Seattle, Wash., are rebuilding the old stern-wheel steamer Vashon, putting in 18 ft. amidships and installing new engines. The boat will come out again in practically new condition. The engines are 16 in. in diameter by 60-in. stroke. The Vashon is owned by the Vashon Navigation Co., of Tacoma, Wash.

Harlan & Hollingsworth Corp., Wilmington, Del., through the president, Mr. W. G. Coke, announces that plans are being perfected for expending about $1,000,000 at that yard in improvements, including the erection of immense new car shops. The improvements are provisional upon the vacation of a street by the city to permit of the proposed extension.

William E. Woodall & Co., Baltimore, Md., have a contract for a large repair job on the steamer Pocomoke, owned by the Baltimore, Chesapeake & Atlantic Railway Co. The Pocomoke was in a collision with a Norwegian steamer and had a large part of thee joiner work on the port side carried away and the flooring cut through to the steel hull.

The American Bridge Co., Pittsburg, Pa., has been awarded contract by the Angola Transportation Co., which operates between Angola and Water Valley on Old River in connection with the Louisiana Railway & Navigation Co., for a new steel towboat and a railroad transfer barge to be of steel also. The towboat is to be 150 ft. long, 32 ft. beam, and 6 ft. depth of hold, and she will have four boilers 40 in. in diameter by 30 ft. long, with two 15-in. flues in each. The engines, two in number, will have cylinders 18 in. in diameter and 8 ft. stroke of piston. The machinery is to be supplied by Charles Barnes, of Cincinnati. The barge has been designed to carry 14 loaded freight cars and will have a length of 295 ft., beam of 37 ft., and depth of 7 ft. The contract provides for the completion of both the vessels within 90 days.

The Union Iron Works, San Francisco, Cal., reports work more plentiful than for many months, having 950 men at work, as against 350 three months ago. The repairs to the German liner Anubis, which were contracted to be completed in 56 working days, are progressing so satisfactorily that the company expects to complete them in 45 working days. Vessels under construction and repair are: Tank steamer Roma, Union Oil Co., San Francisco, $25,000; tank steamer Argyle, $20,000; tank steamer Atlas, Standard Oil Co., general repairs, $10,000; steamship Alaskan, American-Hawaiian Steamship Co., San Francisco, repairs and overhauling, $15,000; three 65-ft. wooden steamers for harbor service, United States quartermaster's department. Also a new caisson for Hunter's Point dry dock. The Union Iron Works was the lowest bidder for repairing the army transport Sherman, offering to do the work for $301,000, but no funds are at present available for the work.

The auxiliary steamer Erik has arrived at St. Johns, Newfoundland, after having safely transferred a large supply of stores to Com. Peary's Arctic exploration ship Roosevelt at Etah, West Greenland. After taking on the coal and provisions the Roosevelt left Etah Aug. 18. Com. Peary hopes to reach the Polar sea or else to reach a point from which he can easily get to Cape Columbia by next February. He will then make a dash across the ice floe in an endeavor to locate the pole. The ice conditions were reported as favorable and the expedition has every hope of attaining its object.

The Seneca Chain Co., Kent, O., has just secured an order from the American Ship Building Co. for two cables of 2¼ in. chain for the two new boats now building for the Pittsburg Steamship Co. at Lorain. These cables will weigh 108,000 pounds.

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A WRONG TO THE MERCHANT MARINE.

The news will come as a severe and painful shock to American ship owners and builders, and all who wish well to the merchant marine, that the navy department, apparently ignoring the plain mandate of congress, is filling up its coal supply at Guantanamo by the purchase of coal sent out from the United States in foreign ships. This case is not a parallel to the employment of foreign steamers to transport the coal required by our battleship fleet on its voyage around South America and across the Pacific ocean. In this instance the navy department frankly advertised for bids and granted the contracts to foreign ship agents only because no American ships were found to be available for this long-voyage service. There could be and there was no complaint of the policy of the navy department in that respect. It was characterized by a decent, friendly regard for American shipping interests.

But this use of foreign vessels to convey navy coal on what is practically a short coastwise voyage to Guantanamo is very different. The laws of the United States specifically require that none but American vessels shall be used to carry our naval and military stores, unless, indeed, no American vessels are to be had or unless their rates are excessive and unreasonable. In the present case there were American vessels, and many of them, to be had if they were sought, and there is no proof whatever that their prices asked were excessive and unreasonable.

Never were Atlantic coast freights so low as they are now, and never was there so much disengaged tonnage, both steam and sail. For a long time there have been 20 or more American steamers, many of them especially designed and constructed for the carriage of coal, laid up out of commission in New York harbor. Some of the owners of these vessels, we know, had offered their ships to the navy department for the carrying of navy coal some time ago—and the first inkling of this particular transaction they had was when they learned that a foreign steamer of the Earn line had been engaged to carry a cargo of coal to Guantanamo, to be purchased by the navy department there.

This may be said to be not equivalent, of course, to the purchase of coal by the navy department in this country and to the chartering of a foreign steamer by that department for its shipment. But the difference, if any, is the difference between tweedledum and tweedle'ee. The navy department, if it sought to carry out the law in the proper spirit, ought to have insisted that the contractor should employ an American ship, unless he were able to prove, what he could not have proved, that there was no American vessel to be had or that its rates were excessive and unreasonable.

The act of the department is a grave injustice to the American owners of American ships duly registered in this country and operated in accordance with American law, employing American officers and furnishing the food scale required by congress. It is an affront to that earnest and patriotic American public opinion which seeks the building up and not the tearing down of the American merchant marine. It is a violation of the protection policy believed in by an overwhelming majority of the American people and sustained by the administration of Theodore Roosevelt. More than this, we believe that it is an unmistakable infraction of American law.

The excuse of the navy department will probably be that by purchasing coal delivered by foreign ships it is enabled to save several thousand dollars of public money. Well, if this is good sound public policy—if mere cheapness is the end to be sought—why not go a step further and buy at low prices abroad the armor that mails our ships, the guns they mount, their power and projectiles? Or why not, instead of high-priced American sailors, employ Lascars and Chinese at $8 a month in the fire rooms and engine rooms.

The answer to this, of course, is that it would not be sound public policy—and, moreover, that those American industries engaged in the making of armor and projectiles and ammunition, and in supplying the woolen clothing and all other things that the navy needs, are strong and prosperous industries and formidable, and that it would be the height of political folly to attack these industries, especially in the midst of a national campaign. But American ship owning and ship building—oh! this is a small and a feeb'e industry, with the odds overwhelmingly against it. Therefore, it is safe to ignore its interests and even to ignore the law enacted to defend it, and to give the carrying of navy coal to rich and powerful foreign steamship corporations.

This appears to have been the line of reasoning of the navy department, or at least of the clerks who doubtless put through the transaction.

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Perhaps they believed that the matter would be passed over without notice or that, at any rate, a protest would be weak and ineffective. But we think they are mistaken—grievously mistaken. Congress passed the law requiring that a preference be given to American vessels in the carrying of our naval and military supplies—and congress will insist that in spirit and in letter the law shall be obeyed.

If the navy department boycotts American vessels and deliberately prefers foreign vessels for the transportation of its coal in time of peace, nothing is more certain than that there will be no American ships to convey the navy coal in time of war, when the use of foreign craft is absolutely prohibited and impossible. The action of the navy department is not only a blow at the merchant marine—it is a blow at the national defense.

LAKE FREIGHT SITUATION.

Were it not for the smoke which has been intermittently prevailing on the lakes during the past two months, sailing conditions on the great lakes would have been ideal during the present fall. Masters cannot recall a fall quite like it. Not only have the fall months been free from storms, but the weather has been unusually mild; in fact, not sensibly colder than summer. The smoke, however, has been a great nuisance.

Fire broke out again last week and made it quite as bad as it was during the earlier ravages of the flames. It was thick from one end of Lake Superior to the other and so thick in St. Mary's river that neither shore could be discerned nor any of the lights seen until the vessel was practically upon them. In a way, however, this constant presence of smoke has provided a mighty good school in careful navigation for the masters. On Friday last the steamers John Donaldson, Zenith City, Henry Phipps, Manola, Cornell, W. G. Kerr, W. H. Wolff, Fayette Brown, and a number of others were bunched at the government pier below the locks in a smoke so dense that it was scarcely possible to see ahead 50 yards. Suddenly an east wind lifted the fog sufficiently to make the Canadian shore dimly visible, and the Wolff, which was the outer vessel, slipped her cables and disappeared in the fog. This was a signal for all of them to leave their moorings and inside of 20 minutes every one of them had disappeared, undoubtedly some of the masters being dubious as to whether they would get beyond Hay Lake, but unwilling, nevertheless, to remain in port as long as others were attempting to navigate. In point of fact, it became as thick as ever shortly after the vessels had left the Sault, but all of them got through all right. It meant careful navigation though, checking continually and even stopping at times with master, mate and lookout on the alert for lights. It is safe to say that two years ago no master on the lakes would have attempted to run St. Mary's river in the condition in which it was on Friday last; but they have all had severe training since then and have benefited by it.

The smoke, however, which rain does not seem in any way to disperse, makes navigation extra hazardous and it is likely that barges will be retired at the end of the present week. It is enough to take a steamer through it without being worried with a consort. Leading ore shippers are also arranging to close the season early in November, as far as outside tonnage is concerned, which will of course send a number of the larger carriers to the dock, as the grain rate is not sufficient to interest them. The season is apparently destined to end very quietly.

PIG IRON SITUATION.

Some pig iron contracting has been done in anticipation of the favorable outcome of the presidential election, and there is considerable heavy structural business pending, probably 150,000 tons, to be let in the near future. However, there is a strong conservative feeling that it is not wise to anticipate a heavy improvement in business next month. The report of the United States Steel Corporation for the third quarter shows an encouraging increase in earnings. In the east, considerable malleable iron has been sold, and in the Pittsburg district there have been numerous sales of all grades. There is a better demand also for the southern product. Railroads continue to buy considerable structural material as well as steel underframes for cars. An advance in the price of bar iron seems probable at a not far distant date. Inquiry for furnace coke for next year's delivery is more frequent, and prices tend upward. The recent increase by the Pennsylvania railroad of its orders for locomotive coal to one company alone of about 15 per cent is regarded as significant of increased business.

SHOAL WATER AT LORAIN.

Lieut.-Col. John Millis reports that recent soundings taken in Black river, Lorain, O., indicate shoal water in the following locations: A bar formation about 30 ft. wide extending easterly to the middle of the channel from the west pier to a point about 200 ft. southerly from its outer end. A bar formation about 70 ft. wide, the depths over it varying from 17 to 20.8 ft., located at a point about 250 ft. from the shore end of the west pier and extending easterly into the channel about 140 ft. therefrom. Shoal water is also found over the westerly 80 ft. of the channel throughout the length of the west pier, and in the center of the river for about 700 ft. down stream from the East Erie avenue bridge. Sounding operations will be continued to locate other possible shoals and the United States dredge Burton has been ordered to Lorain to clear the channel as soon as the weather permits. Deeply laden vessels should exercise caution in entering and leaving this harbor till the shoals are removed.

ERIE CANAL TO CLOSE DEC. 1.

F. C. Stevens, state superintendent of public works, has announced that navigation will continue in the Erie canal until Dec. 1. This is a reversal of the earlier announcement that the canal was to be closed Nov. 15 on account of interference with the work of the contractors on the new barge canal.

The superintendent was able to persuade the Great Lakes Construction Co., of Buffalo, which has Contract No. 19, and the O'Brien & Hooligan Contracting Co., holding Contract No. 11, and whose agreements provided that navigation of the old canal ceases Nov. 19, to consent to the new arrangement.

In the description of the reclamation dredges for Bombay built by William Simons & Co., Renfrew, as published in the MARINE REVIEW of Oct. 8, it should have been added that the rotary cutter and dredging machinery fitted to these vessels was built from the designs of A. W. Robinson, Montreal, Can., Simons & Co. having constructed them under license from him and from his detailed drawings.

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ITEMS OF GENERAL INTEREST.

The Booth Steamship Co., of New York, announces that its tri-monthly sailings from New York to Amazon river ports are to be resumed with the sailing of the steamer Cuthbert on Oct. 30.

The work of constructing the new pier at East Boston which is being erected by the Boston & Albany railroad for the use of the Cunard Steamship Co., has begun, the piling and concrete substructure being well under way. Contract will soon be let for the superstructure.

A committee of steel workers from Pennsylvania are to call on President Roosevelt soon to ask that certain of the work now being done at the Washington navy yard be given to the steel mills of Pennsylvania in order to give employment to some of the idle men of that trade.

The Bridgeport & New York Transportation Co. is a new independent steamboat line which expects to establish a freight and passenger service between New York, Bridgeport and New Haven about Nov. 1. The line will be in direct competition with the Sound lines already in existence.

The crew and fittings of the stranded cruiser Yankee were brought to Boston this week by the colliers Lebanon and Nero, where the crew was transferred to the receiving ship Wabash, where they are to remain until after the wrecking operations have been concluded or the cruiser is given up altogether. They will also be needed when the inquiry regarding the accident is ordered.

A rate war on the Pacific is confidently expected between the Pacific Mail Steamship Co., controlled by the Harriman interests, and the Nippon Yusen Kaisha, a Japanese company, subsidized by its government. The Japanese company is reported to have made a cut of 20 per cent in its freight rates and the Pacific Mail is expected to meet any reduction made.

The overdue British schooner Earl of Aberdeen was towed into New York harbor this week after having had a trying experience in the recent hurricane along the southern coast. She had been sighted by several vessels and was known to be drifting about in a helpless condition although a wrecking vessel sent in search of her failed to locate her. She had lost her rudder and was leaking badly.

Boat owners operating in the grain trade on the Erie canal between New York and Buffalo are again complaining against the present canal regime. They say that the work on the new barge canal is being allowed to interfere with the old channel in direct opposition to the terms of the contracts and that the condition of the locks and the canal in general is very bad. Eel grass is alleged to be flourishing and no effort has been made to check it and the mills have been allowed to use more water than the canal could well spare, thus making it necessary for the boats to take less cargo than formerly. The dredges employed on the new work are also said to be much in the way of the regular traffic.

Reports are current in Puget Sound shipping circles to the effect that the arrangements now being made by eastern capitalists to establish a line of freight steamships between Seattle, Tacoma, Bellingham and Australia, are to be carried out in conjunction with the completion of the coast extension of the Chicago, Milwaukee & St. Paul railway. The promoters intend to confine their shipments mostly to lumber, with return cargoes of wool.

The International Exhibition of Industry, Colonies and Navigation, which is to be held at Rotterdam, is to open May 1, 1909, and will remain open through the months of May, June and July. Eugene Blondiau, managing director, Rotterdam, Netherlands, has extended a cordial invitation to American manufacturers to participate and has assurances from the manufacturers and governments of the continent which augur well for the success of the exhibition.

The New York & Porto Rico Steamship Co. has announced the inauguration of a new service from Galveston and Port Arthur, Tex., to ports in Porto Rico. The service will probably be monthly for the present, but it is expected that it will eventually become semi-monthly. The New York & Porto Rico Steamship Co. maintains a weekly service to Porto Rico from New York and a twice-a-month service from New Orleans.

Rear Admiral Holliday, chief of the bureau of yards and docks, navy department, returned last week from a trip to the Hawaiian Islands, where he spent three weeks investigating the naval base at Pearl Harbor. He estimates that it will require $2,000,000 in addition to the $3,000,000 already appropriated by congress to complete the work. There are 5,000,000 ft. of coral and sand to be dredged out. The work is to be finished in 1909. Rear Admiral Holliday also stated that it is the intention of the navy department to bring the navy yards at Mare Island and Bremerton up to a larger standard.

At 7:20 A. M., Oct. 8, while running in a thick fog the steamer City of Everett, which operates as a fast passenger steamer between Seattle, Edmonds and Everett, struck a log, broke her tail shaft, lost her propeller overboard, wrecked her eccentric straps and otherwise damaged her engine. She was towed back to Seattle and will be immediately repaired by the Moran Co. Steamer Telegraph will run on the City of Everett's route until the latter is repaired.

The battleship Maine has completed her voyage around the world, arriving in Portsmouth, N. H., Oct. 19. She was one of the special service squadron which left Hampton Roads about a year ago. Leaving the rest of the squadron at San Francisco the Maine and the battleship Alabama proceeded to the Atlantic by way of the Suez canal. Capt. William Caperton, in command of the Maine, stated that the ship was in fine condition and officers and men in good health but glad to get back to the United States. She proceeded from Portsmouth to the Brooklyn navy yard.

Herr Albert Ballin, manager of the Hamburg-American line, has approached the executives of the chief British steamship lines with a proposal for a co-ordination of sailings of the fast liners of the different companies across the Atlantic, his object being to limit the building of huge and costly express liners by rival companies. No reply has as yet been forthcoming from the British lines but the matter is to come up for discussion at a shipping conference soon. It is not thought that the time is yet ripe for such an innovation although its advantages are at once apparent.

Orders have been issued from the navy department that the battleships New Hampshire, Missouri, Idaho, North Carolina and Montana and the three scout cruisers, Chester, Salem and Birmingham, are to be painted slate color. There has been for a long time criticism of the white on the hulls and the spar color (yellow) on the upper works with which the ships of the navy have been painted in time of peace. The idea of painting the ships slate color is to try a war-time color in time of peace so that maneuvers may be accomplished profitably. With white it is practi-

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cally impossible to do any effective searchlight work at night, as the ships are very easily discovered. There is furthermore an objection to the patchy look of the white paint after it has been on a short time. Neither the white nor the yellow are so lasting as the slate color.

The North German Lloyd Co.'s new liner George Washington is to be launched at Bremen, Oct. 31. She will be christened by Dr. David Jayne Hill, the American ambassador to Berlin. The George Washington, which will be the largest German steamship, is 777 ft. long, with a tonnage of 27,000.

The British cruiser Gladiator, which sank off the Isle of Wight in April, and on which salvage operations have been in progress ever since, was refloated Oct. 1 and towed to Portsmouth, England, to be docked. The work of salving her has cost between $250,000 and $300,000 and many experts are of the opinion that she can never be used again.

The derelict Norwegian steel bark Fox was towed into New York recently by the British tank steamer Luciline. The Fox carried no cargo and was found to be in perfectly good condition although on her beam ends. After shifting her ballast so that she rode on an even keel the steamship had no difficulty in making port with her. Capt. Hilsham and the crew of the Luciline are awaiting developments concerning their percentage of salvage money.

The Virginia system, headed by H. H. Rogers, is to erect the largest coal pier in the world at Sewell's Point, Va., which is the deep water terminus of the railway. This pier is to handle a greater coal tonnage than that of all the other Virginia railways combined and will cover many acres of land. The Virginia system controls thousands of acres of West Virginia coal fields and the road was built for the purpose of bringing the product to the Atlantic coast. With the completion of the Panama canal the shipments will, it is said, be the greatest in the world.

A report is current in Puget Sound shipping circles that the Hill liner Minnesota is to be sold to the Nippon Yusen Kaisha to be operated in its present service between Japan and the Pacific coast. The Minnesota has been a financial failure from the beginning. The report has been given considerable credence owing to the presence in America of Rempei Kondo, president of the Nippon Yusen Kaisha and Capt. T. H. James, London agent, who, it was announced, were called to this country on business connected with the enforcement in November of the Interstate Commerce Commission's ruling affecting Oriental trade.

The navy department has plans in hand for equipping the submarines with an improvement to their machinery which is expected to prevent the cracking of the cylinder-heads of engines, from which trouble several of the vessels suffered during the recent maneuvers on the Atlantic coast. The improvement consists of the installation of a new pump, having a greater capacity than that now in use for circulating water around the cylinders. It is said to have proved efficacious in the case of the Octopus, and the improvement is therefore to be installed on the Viper, Tarantula and Cuttlefish.

The increase in the shipping rates on goods imported from the Orient is proving to be more serious than was expected, according to merchants of New York who deal in Japanese and Chinese goods, but it is not expected to cause any serious decrease in the consumption of such articles, but only that the increase will inevitably fall on the consumer. Such is the broad effect of the Interstate Commerce Commission's work arising from the Railway Rates Act.

It is expected that the Harriman interests will not renew their charter of the big freight steamers Nicomedia, Arabia, Numantia and Alesia when the present charter expires at the beginning of next year. The boats have been operated as the Portland & Asiatic Steamship Co., between Portland and ports in Japan and China. The recent ruling of the Interstate Commerce Commission with regard to the publication of rates has made the operation of the steamers unprofitable in connection with the Harriman lines. The Hamburg-American Steamship Co. owns the freighters, and it is reported that it will continue their operation between Portland and the Orient.

Many naval officers agree with the idea advanced by Rear Admiral C. F. Goodrich that the number of navy yards be reduced by abandoning at once those which because of lack of size and equipment will have to be abandoned sooner or later. It is probable that the navy department will submit some such recommendation to congress at the next session, based upon Rear Admiral Goodrich's report. It is believed that the yards at Boston, New York, Norfolk and Charlestown could care for all needed repair and construction, while the yard at Philadelphia might be continued for a station for ships in ordinary, Key West as a coaling station and base of supplies and Portsmouth, N. H., for minor purposes. Of course the Puget Sound yard would be in no way affected although the Mare Island yard might be abandoned and a new one established elsewhere on San Francisco Bay which would be easier of access. By many this is considered advisable owing to the interference to which the approach to Mare Island is subject.

The North German Lloyd Line has announced that on the new steamship George Washington there will be an innovation in the way of third-class cabins to accommodate those passengers of small means who do not care to travel in the steerage and yet find the second-class cabin rates too high. The open portion of the upper saloon deck aft and the deck above the wheel house will be reserved for this class of passengers.

The annual meeting of the Boston Steamship Co., which was to have been held in Philadelphia on Sept. 15 has been postponed until some definite information has been received in relation to the sale of the company's steamers Shawmut and Tremont to the government. If this deal is consummated it is likely to result in winding up the affairs of the Boston Steamship Co. The price at which these vessels have been offered the government is said to be such as to allow all alterations and necessary repairs to be made to fit them for the Panama Canal commission's service of the hardest kind for at least five years. As the vessels are known to be in excellent condition it is believed that the commission's expert will give a report favorable to their acceptance.

A recent cable dispatch received at the navy department from Admiral Sperry requests the department to reduce by 8,000 tons his original estimate of the coal necessary for the voyage from Manila homeward. On the cruise from Hampton Roads to San Francisco a system of competition among the engine room forces of the various battleships was instituted, resulting in the saving of 1,500 tons on the trip. This system was continued on the trans-Pacific voyage. The navy department will ask congress for an appropriation of $2,500 for prizes to be distributed among the engine room forces of ships showing especial economy and efficiency in coal consumption. It is estimated that by the time the fleet arrives home a saving of $75,000 in coal consumption will have been effected.

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MIDDLE NEEBISH CHANNEL PARTLY CLOSED—SOUTH HALF AVAILABLE.

The attention of masters navigating St. Marys river is directed to the map printed on the opposite page, showing the present conditions in the Middle Neebish Channel.

The south half of the channel opposite the dike has been dredged, and, by sweeping, has been found clear to a depth of 19.6 ft. This constitutes the available channel at present. The north half of the channel at the dike is occupied by the dredging plant and is closed to vessels.

The northerly line of the *available* channel, which is the middle or range line of the full channel, is marked by six red lights placed abreast of the dike, as indicated on the map. The marks are small boats, except one, which is a float made up of several casks fastened together with a small deck on top. Each mark is painted red and carries a red light 4 or 5 ft. above water.

Vessels should hold to the south side of channel all the way through the Middle Neebish, keeping well to southward of the range line and close to the black buoys and white lights. This will avoid the necessity of crossing over on reaching the dike.

NEW CIRCULAR ON RULES AND REGULATIONS.

A new circular has recently been issued by the department of commerce and labor styled Bureau Circular No. 8, which contains "Sections of the Revised Statutes and Rules and Regulations Relating to Licensed Officers of Steamboats."

The department desires that this circular shall have as large a distribution among licensed officers of steamboats and steamboat owners as possible and the local board at Cleveland is prepared to supply copies to all licensed officers who have received their licenses therefrom upon receipt of addresses, or the circulars may be obtained by applying at the Cleveland office. All owners of steamers inspected in the district will receive a copy.

ROCK OF AGES LIGHT STATION.

The Rock of Ages light station has been finished and a temporary fixed red third-order light will be shown from a conical, buff-brick tower, with cylindrical base and black octagonal lantern. The tower stands on a buff colored, cylindrical, steel foundation pier, 20 ft. in height and 50 ft. in diameter, and will be 87 ft. from its base to the center of the lantern. The light will illuminate the entire horizon, and will be 117 ft. above mean lake level, and visible 19¼ miles, the observer's eye 15 ft. above the lake.

A first-class, 6-in. siren, operated by compressed air, will sound during thick or foggy weather, blasts of two seconds' duration, separated by silent intervals of 13 seconds.

The characteristic of the light at Two Harbors light station, northwestern shore of lake Superior, will be changed from fixed white to flashing red every five seconds without other change.

A fog bell to be struck by machinery during thick or foggy weather, a single blow every five seconds, has been installed at Marquette, Mich.

MINNESOTA DRAW OF NORTHERN PACIFIC BRIDGE AT DULUTH TO BE CLOSED.

The United States Lake Survey is informed by Lieut. Col. Graham D. Fitch, U. S. engineer at Duluth, that on and after Nov. 1 the Minnesota draw span of the Northern Pacific railway bridge across St. Louis Bay, Duluth-Superior harbor, will be closed to navigation for the remainder of the present season. This is rendered necessary by reconstruction of one of the bridge piers.

From the above date, all vessels having to pass up through St. Louis Bay will therefore use the Wisconsin channel and draw span. Docks located on the north side of the bay between the bridge and the ore docks may be reached by way of the Cross channel from the Wisconsin channel to the Minnesota channel.

LLOYDS SHIP BUILDING RETURNS.

Lloyds Ship Building returns for the quarter ended Sept. 30, 1908, show that there were 319 vessels under construction in the United Kingdom, exclusive of warships. These vessels aggregate a tonnage of 733,378, as compared with 450 vessels, of a combined gross tonnage of 1,080,087 for the same period of 1907. This is the lowest total recorded by Lloyds since 1896, is nearly 66,000 tons less than the tonnage under construction at the end of the last quarter and about 347,000 tons less than that building 12 months ago.

Of the number of vessels building in the United Kingdom and abroad at the end of September, 302 of 698,265 tons are under the supervision of Lloyds surveyors with a view to classification in the Register.

The greatest number of new vessels are of course owned in the United Kingdom and the colonies and there are more vessels of from 2,000 to 4,000 tons under construction than of other classes.

Warships being built in the United Kingdom total 66, of 251,138 tons of which number 12, with a tonnage of 112,820, are building at Royal dock yards and 54, of 138,318 tons, at private yards. Of this latter number 38, of 86,812 tons, are to the order of the British admiralty, leaving a total of 16 warships of 51,506 tons, being built in Great Britain for foreign powers.

A table of foreign and colonial ship building shows that in the United States there are 48 vessels, with a tonnage of more than 56,000, under construction, exclusive of those being built on the great lakes.

Vessels of less than 100 tons are not included in these figures except they are intended for registry at Lloyds.

DAILY WAGES OF LABORERS IN JAPANESE SHIP YARDS.

Consul George H. Scidmore, in a report from Nagasaki on the Japanese mercantile marine, states that the following schedule covers the daily wages of laborers for 10 hours' work in ship yards in that country:

Boilermakers	$0.98
Black-smiths	1.23
Calkers	0.49
Coppersmiths	0.96
Carpenters, ship	0.90
Carpenters, house	0.42
Electricians	0.57
Foundrymen	1.02
Finishers	1.00
Lathe workers	0.99
Machinists	0.51
Molders	0.87
Painters	0.75
Pipe makers	0.99
Punchers	0.46
Rivet makers	0.80
Sailmakers	0.55
Screw makers	0.47
Ships' iron workers	1.32

CANAL COMMISSION NEEDS $35,000,000.

The Isthmian canal commission will ask the coming congress to appropriate $35,000,000 for carrying on the work at the isthmus during the fiscal year 1910, provided the estimates prepared by the commission are approved by the war department.

The appropriations for the current year aggregate $27,000,000—$1,500,000 of which was expended for the purchase of three vessels for the use of the commission.

The estimates for 1910 make provision for about seven months' work on the three locks at Gatun. Work on the great spillway which is to be located there, will be begun next December.

The fifth convention of the National rivers and harbors congress will be held in Washington on Dec. 9, 10 and 11.

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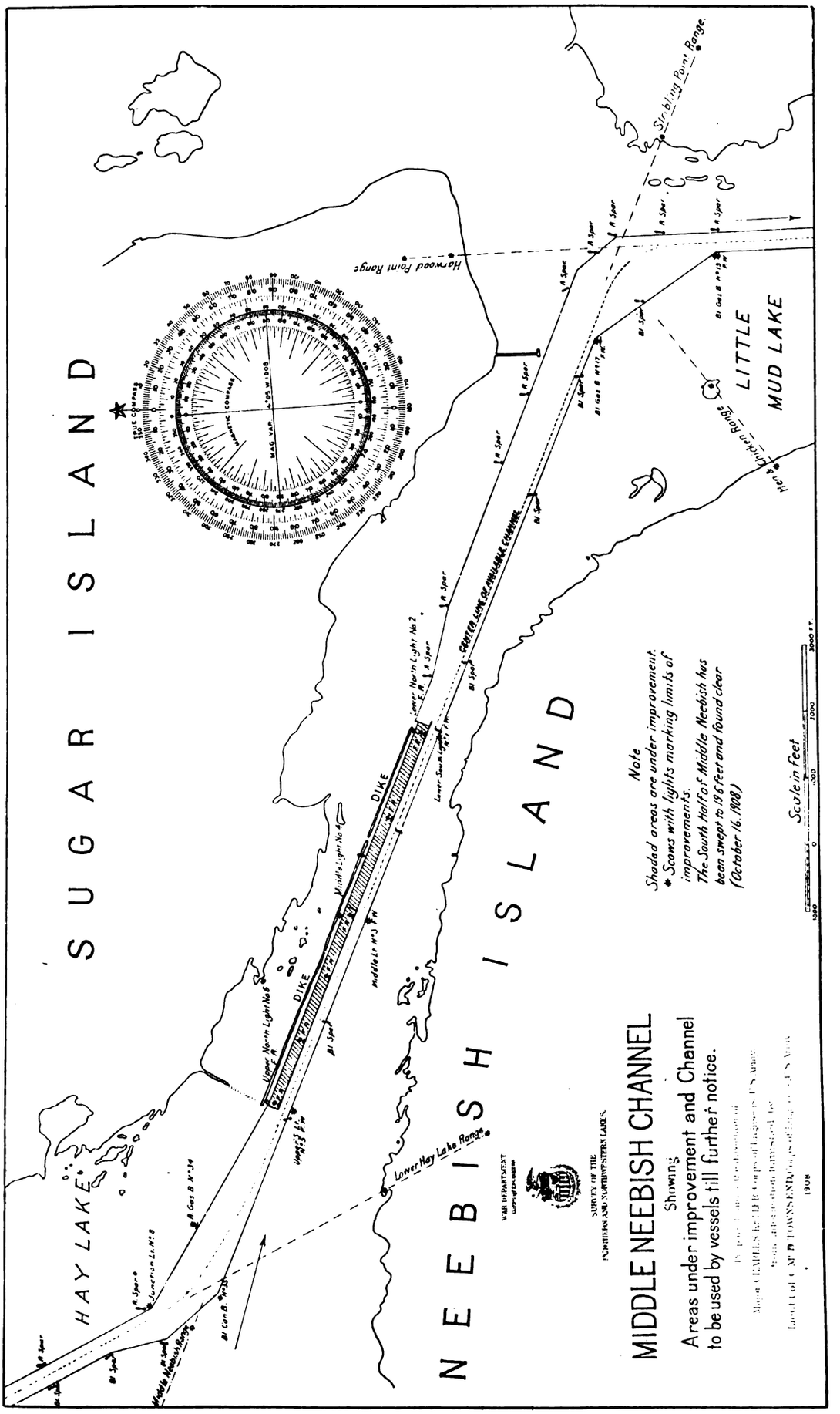
SUGAR ISLAND
HAY LAKE
NEEBISH ISLAND
LITTLE MUD LAKE
DIKE
DIKE
Harwood Point Range
Lower Hay Lake Range
Lower North Light No 2
Upper North Light No 8
Middle Light No 3
Middle Neebish Range
Lower South Light No 1
Sir Bling Point Range
Junction Lt No 8
Bl Gas B No 34
Bl Gas B No 36
Bl Gas B No 38
Bl Gas B No 40
Bl Gas B No 42
Bl Gas B No 44
R Spar
Bl Spar
TRUE COURSE
MAG VAR 4°25 W 1908
MAGNETIC COURSE
CENTER LINE OF NEEBISH CHANNEL
MIDDLE NEEBISH CHANNEL
Showing
Areas under improvement and Channel to be used by vessels till further notice.
Note
Shaded areas are under improvement.
* Scows with lights marking limits of improvements.
The South half of Middle Neebish has been swept to 18 feet and found clear (October 16. 1908)
Scale in feet
1000
2000
3000 FT
WAR DEPARTMENT
SURVEY OF THE NORTHERN AND NORTHWESTERN LAKES
1908

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THE TRIALS OF THE RUSSIAN ARMORED CRUISER "RURIK."

The Rurik—designated an armored cruiser, but in some respects more closely resembling a battleship—built by Messrs. Vickers Sons and Maxim, Limited, at their naval construction works, Barrow-in-Furness, has concluded, with marked success, probably the most exhaustive series of trials yet specified for any warship, and will shortly leave this country for Russia, to be added to the navy of His Imperial Majesty the Czar. The vessel, which embodies not only the great experience of the Vickers Co., but also the valuable suggestions of the Russian Admiralty as an outcome of the recent war, is in many respects as notable a departure from former practice in naval design as was the Dreadnought. Indeed, she is the antithesis of what has been termed "the paper ship." In the first place, the Rurik has a very powerful armament, not only for service in the line-of-battle, but also for repelling torpedo-boat attack. All of the guns have a greater angle of elevation and depression than in previous ships, as well as a large arc of training, and all are operated by electrical mechanism. In the second place, the vessel is specially notable for the effective character of her defense, as she is armored practically from the keel to the upper deck. In the third place, she has a great reserve of boiler power, the heating surface provided being equal to 2.86 sq. ft. indicated horsepower at full speed, and, as will presently be explained, she was required to maintain full speed for three hours with only three-quarters of this boiler power, so that the full speed of 22 knots is more comparable with the speed attained, even in British practice, with only 75 per cent. of the boiler-power. In the fourth place, the vessel carries a greater supply of ammunition than is usually provided, and was, by the wish of the Russian Commission, loaded down on her speed trials to a displacement exceeding by 300 tons the correct displacement. As a consequence of these circumstances, any comparison of the speed performance of the Rurik with the speed of other vessels less effectively designed for attack or defense must necessarily be qualified, regard being had to the general scheme to make the vessel as reliable as possible in all conditions of warfare. This view has animated the builders and the Russian naval commission, composed of between 20 and 30 officers of great theoretical and practical ability and experience. In testing every detail of mechanism in the ship, it was a condition that wherever even the slightest adjustment was necessary, the whole trial should be repeated after the adjustment was made. It was not enough that all concerned might be satisfied that the result must be satisfactory on the principle that effects follow inevitably upon incontrovertible conditions. Everything was done rather to thoroughly establish reliability by proved results, and the Rurik is therefore a most important addition to the navy of the Czar.

The designed displacement of the ship was 15,200 tons on a draught of 26 ft., and the realized condition is well within these limits. The length between perpendiculars is 490 ft., and the moulded breadth 75 ft.*

The Rurik has four 10-in. breech-loading guns, 50 calibers in length, twin mounted in barbettes forward and aft on the center line. Each of these guns can be worked through 35 deg. of elevation and 5 deg. of depression, and the forward guns can be trained 45 deg. abaft the beam, and the after guns 45 deg. before the beam. There are also eight 8-in. breech-loading guns, also 50 calibers in length, twin mounted in barbettes on the quarters of the ship, with a correspondingly large range of fire to that of the larger guns. For repelling torpedo attack there are 20 4.7-in. quick-firing guns, also of 50 calibers in length; 16 of these are placed within an armored battery in the center of the ship, separated from each other by traverses of specially hardened armor. This battery, being on the upper deck, enables the secondary armament to be placed higher above the water-line than usual; it also incidentally adds very largely to the armored protection, as it is above, and additional to, the normal armored side of similar ships. Aft there are four 4.7-in. guns, and these are also within armor on the sides of the ship, while to counteract the effects of raking fire three armored bulkheads have been fitted; this is quite a new feature in the protection of warships. There are 12 smaller quick-firing guns. Two 18-in. torpedo tubes, completely submerged, are placed forward. Each of the guns in the ship is capable of developing a much higher muzzle energy than weapons of the same caliber hitherto fitted, so that from all points of view the armament of the ship is very formidable.

The exhaustive character of the ordnance trials is indicated by the fact that 100 rounds of ammunition—full charges—were fired from one of each type of gun, these guns being similar to the ship's guns, and built specially for trial purposes. Following this, 30 rounds were fired from two of the 10-in. guns and two of the 8-in. guns, and 15 from the other guns at various angles of elevation and depression, and on various bearings, in order to test the mountings of the respective guns. The separate items of the mechanism had formerly been subjected to many trials in order to insure reliability, especially in view of the departures from earlier practice, due to the extensive application of electricity. In this the Russian naval authorities have shown commendable progress. The care bestowed on adjustment of the mountings resulted in the trials at sea being successful. The respective gun-mountings were worked to give, when firing ten rounds, a rapidity of two rounds per minute from the 10-in. guns, of three rounds from the 8-in. guns, and of eight rounds from the 4.7-in. guns, while the 47-millimeter guns fired at the rate of between 20 and 30 rounds, and the Maxim gun at about 500 rounds per minute.

In regard to the defensive qualities of the design the vessel has a complete belt from end to end, extending to a considerable distance below the water-line. It is, for the greater part of the length, 6 in. in thickness, tapering to 4 in. and 3 in. at the extreme ends of the hull. For protecting the 4.7-in. guns, the upper strake, for 200 ft. of the length of the ship, is of 3-in. specially hardened armor, manufactured, like all the other armor, at the Sheffield works of the Vickers Co., and subjected to careful tests at the Eskmeals range. The barbettes, which are within this central battery, are of much heavier armor, having 7¼-in. walls, while the conning-towers are of 8-in. armor. Another feature is the range-finding towers, of which there are two, extending for a considerable height above the upper deck, and constructed of 5-in. specially hardened armor. These offer, independently of the mast, satisfactory observation stations for the determination of the range for gun fire.

There are protective decks of a combined thickness of 4 in., arranged so as to secure as far as practicable that all high-explosive shells shall burst outside the ship. The base of each of the three funnels is protected by armored casings. The whole of the machinery and magazines which are under the water line are surrounded by armored walls, which extend from the main deck, through the protective deck, to the bottom of the ship. This is in addition to the usual construction of double skin. Thus

*See *Engineering*, Vol. LXXXII, page 656.

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all the machinery and vital parts of the vessel are adequately protected by specially hardened armor.

The machinery, as we have already stated, has been designed with less regard to economy of weight than to reliability under any adverse conditions. The boiler power is considerably in excess of that provided in former practice. There are 28 water-tube boilers, and these are fitted for consuming coal or oil fuel. The propelling machinery consists of two sets of four-cylinder triple-expansion engines, carefully balanced to obviate vibration and to make the ship a steady gun platform. Each set of engines has one high, one intermediate, and two low-pressure cylinders, the power under easy steaming being 20,000 I. H. P., with the boilers working at a steam pressure of 285 lb. to the square inch, which is reduced to 250 lb. before entering the engines. A complete system of auxiliary machinery has been fitted, and special attention has been devoted to the pumping and drainage arrangements, which are the outcome of much thought on the part of the Russian admiralty officials.

The steam trials were conducted under the supervision of a large commission of experienced Russian officers, who, as we have already indicated, have been actuated with the one aim of insuring that when the vessel goes into commission she shall be thoroughly efficient even in the hands of officers without experience of this particular ship. As a consequence, the trials have been more protracted than is usual in other services where the best reliable results are got after what is known in engineering language as the grinding down of bearings during the first few months of commission. In other words, the Rurik, as a result of her trials, is now in the position of other vessels which have been several months in commission. Each of the requirements of the specification prepared by the Russian admiralty has been fully satisfied, and a study of the official results which we are enabled to publish shows that this ship, notwithstanding the very important innovations to insure increased strength in attack and defense, is capable of an exceptionally high speed in continuous steaming, and even with some of the boiler power out of action. Perhaps the most interesting features of these trials were those at full power. In the British service the maximum power of the machinery has to be maintained for eight hours. In the case of the Rurik this condition had to be kept up for 10 hours, and, in addition, as we have already indicated, the vessel had to run for three hours at 21 knots with one-fourth of the boiler power entirely out of service.

Moreover, during the usual 24 hours' completion trial, made immediately before the acceptance of the ship, and after the opening out of the machinery, it was decided to run the machinery for 10 hours at full power. In the British service this commissioning 24 hours' trial very rarely includes more than one hour's run at full power. The Rurik on this trial made a splendid performance, as the speed maintained for the 10 hours was much more than that required by the contract. The results are given in column 6 of the annexed table. The mean I. H. P. was 20,675, as compared with 19,700 H. P. guaranteed; the mean revolutions being 141.6, against the 135 required for 21 knots. It will thus be recognized that the revolutions, power and speed are in

TABLE SHOWING RESULTS OF TRIALS OF THE RURIK.

1.	2. Mean of 30 hours at 12 knots.	3. Mean of 30 hours at 19 knots.	4. Mean of 10 hours at 21 knots.	5. Mean of 3 hours at 21 knots with three-quarter boiler power.	6. Mean of 10 hours at full power during 24 hours' completion trial.
Steam pressure, lb. per sq. in.	196	261	269	273	280
Vacuum, in.	27.12	27	26	25.8	26.2
R. P. M.	75.6	123.85	138.48	138.3	141.6
I. H. P.	3,039	13,359	19,355	18,953	20,675
Number of boilers in use	8	21	28	21	28
Air-pressure in stokeholds, in.	0.13	0.3	0.31	0.58	0.36

excess, but in correct proportion, indicating the accuracy of the design and the realization of the usual marginal allowance. Moreover, the engines did not vary more than 1 R. P. M., and with the exception of one reading, the hourly results ranged between 20,000 and 21,000 H. P. The earlier 10 hours' trial, of which the results are given in column 4 of the table, was equally satisfactory, and the three hours' trial with three-fourths of the boiler power in use, the leading points of which are given in column 5 of the table of results, was still more remarkable.

The speed was determined during the trials as a consequence of several runs made over the measured mile at Skelmorlie, on the Clyde. The condition stipulated was that throughout the 10 hours, and later throughout the three hours, the engines should keep up an average number of revolutions equaling or exceeding the number corresponding to 21 knots, as ascertained on the measured mile trials, and this was easily accomplished. The Rurik also carried through two 30-hour trials, one at about 19 knots and the other at about 12 knots. These trials were to determine the radius of action, and the results are given in the table.

Very careful data were collected by the commission, not only as to coal consumption, but also as to water consumption, tanks being specially provided. An important condition in the contract had reference to stability, and the specified metacentric height was exceeded by about 10 per cent, with which result the Russian officers were highly pleased. Observation was also taken of the temperatures in various parts of the ship, etc. Maneuvering trials were also carried out, and in this respect the ship was found to be very satisfactory. Indeed, from the first to the last, the Russian commission put the ship through a series of tests of a most searching character, and the result establishes that the severe conditions of the contract have been fulfilled, and that the Rurik is from every standpoint a remarkable ship of the line.—*Engineering*, London.

PLANS FOR NEW COLLIER.

The navy department has made known to intending bidders the chief characteristics of the collier to be built under contract, bidders being invited to submit their own designs. This collier will be a duplicate of that to be built by the government at Mare Island, and the general requirements are for a single deck vessel, 530 ft. long, 65 ft. beam, and 27 ft. 6 in. mean draught. In addition to the provision for the storage of 12,500 tons of cargo and bunker coal, it is stipulated that there shall be space for carrying about 1,000 tons of fuel oil in bulk, with an additional cargo hold for carrying either coal or oil.

Consideration will be given to a design for the subsequent installation of arrangements for coaling at sea. The machinery will consist of twin-screw, triple-expansion engines, capable of furnishing a continuous sea speed of 14 knots. The accommodations for personnel contemplate quarters for eight commissioned officers, a boatswain, carpenter, three warrant machinists, pay clerk and a crew of 150 men. It is provided that the ship shall be completed within 20 months.

The new woven steel military mast has been ordered to be placed on the battleship Oregon at the Puget Sound navy yard, and on the battleship Indiana at the Philadelphia yard. The fire control system that is to be installed in these vessels will center in these towers or masts.

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AROUND THE GREAT LAKES.

The steamer Wm. P. Snyder grounded at Erie with a cargo of ore but got off without help.

The steamers J. J. Sullivan and Philip Minch grounded inside Buffalo breakwater last week in the thick fog.

The steamer Sacramento, which was sunk by the steamer Mataafa at Duluth, has been raised and is at the coal dock unloading.

The steamer Scranton, of the Anchor line, stranded on Keweenaw Point, 40 miles from Portage entry, last week in the heavy smoke.

The lighthouse tender Amaranth went aground at the foot of Belle Isle, Monday. The steamer Crocus and tug Lorman pulled on her.

The steamer Langell Boys, which was aground at Presque Isle, Lake Huron, was released after jettisoning several thousand feet of lumber.

The steamer City of Genoa was released from McGulpin's Point by the wrecker Favorite after 300 tons of her cargo of ore had been released.

The steamer Donaldson and the fuel lighter Perry, owned by the Pittsburg Coal Co., are to be equipped with smoke preventing devices on the steam jet principle.

The steamer A. G. Brower, of the United States Transportation Co.'s fleet, stranded near Cheboygan last week in the thick fog. She was released, uninjured.

The steamer Caledonia, while loading ore at the Chicago & Northwestern dock at Escanaba last week, sprung a leak and had to go to Manitowoc to be docked.

The passenger steamer Marquette went on the beach near Kenosha on Lake Michigan last week. After the crew and seven passengers were taken off, the steamer was released.

The steamer D. M. Clemson, while endeavoring to enter Ashtabula harbor in heavy weather last week, crashed into the lighthouse crib, knocking it 4 in. out of line.

Malcolm McGregor, mate on the steamer Scottish Hero, was drowned last week in trying to rescue the light keepers at Point Iroquois who were compelled to desert their station owing to the forest fires. McGregor, together with four other members of the Scottish Hero's crew, manned a yawl and headed for the lighthouse, but the wind was so strong that they were unable to reach shore. The steamer went to the aid of the men in the yawl and succeeded in rescuing all of them with the exception of the mate, who, while climbing up a rope ladder at the ship's side, became exhausted and fell back. The body has not been recovered.

The steamer America, which picked up a sunken log in her wheel recently in Green Bay harbor, had all the buckets on her wheel broken and her rudder bent. The damage is estimated at $1,500.

The Northern Foundry & Machine Co., Sault Ste. Marie, Mich., removed the broken crank pin of the steamer Gettysburg and replaced it with a new one last week. The work was exceedingly well done.

While coming down the lake, steering south, one-quarter east, about one mile above Corsica Shoal lightship, the steamer Frank J. Hecker struck a boulder and after working about two hours succeeded in releasing herself.

Capt. John Robinson of the barge Cutler was killed at Kelley Island last week. He attempted to save a pet dog which fell overboard and was crushed between the vessel and the dock, dying on the way to the hospital.

A Canadian notice to mariners referring to the Canadian lighthouse tower erected on the southern end of Stag Island shoal, St. Clair river, 25 ft. north of the site of the old pole light, and which was put in operation on the 17th inst., states:

"The tower is an inclosed wooden building, square in plan, with sloping sides, surmounted by a square wooden lantern, the whole painted white. The height of the tower from its base to the top of the ventilator on the lantern is 22 ft. The tower stands on a reinforced concrete pier, square in plan, with battered sides.

"The light will be a fixed white light, elevated 20 ft. above the level of the river, and should be visible four miles from all points of approach by water. The illuminating apparatus is dioptric of the seventh order."

The steamer George Stephenson, of the Pittsburg Steamship Co.'s fleet, which stranded on Bois Blanc Island, Straits of Mackinac, on Oct. 20, was released by the wrecker Favorite on Thursday last. The Stephenson was coming down, loaded, in the storm which swept the upper lakes last week, when she went on. Her No. 2 and No. 4 tanks, as well as the engine room, filled with water and she had a large hole stove in her bottom. After lightering part of her cargo she was pumped out and floated. A temporary cement patch was put on the break at Mackinaw and she left for Lake Erie, where she will be docked. The work is in charge of Capt. W. W. Smith, marine superintendent of the Pittsburg Steamship Co.

The fog whistle on the lighthouse at Racine reef is silent. Investigation shows that the smokestack on the house had worn out, making it impossible to sound the whistle. It may take a week to replace the stack.

The steamer Peters, of Michigan City, collided with the steamer Venezuela in entering the harbor of Sheboygan and damaged the Venezuela to the extent of $4,000. The collision was due to a misunderstanding of signals.

Regarding the suggestion of Capt. W. G. Rogers of the steamer Monroe C. Smith that a cluster of lights be placed in the center of the span of the aerial bridge over the ship canal at Duluth, Capt. W. H. Kilby of the steamer Cornell believes that a searchlight, similar to that installed at Conneaut, would be more efficacious, and that it would throw a beam of light that could be seen for miles under all conditions of thick weather that are likely to be encountered.

The keel of the new steamer for the White Star line was laid this week at the yard of the Toledo Ship Building Co., Toledo. Delivery is promised for Dec. 15, which would make the job one of the fastest ever undertaken on the lakes. Charles B. Calder, general manager of the company, says that the keel for the new bulk freighter for R. P. Ranney, of Cleveland, will be laid Dec. 1. The company is having plans drawn for a new dry dock to be the largest on the lakes.

The international waterways commission will meet in the office of the American section at Buffalo on Saturday next to define the boundary line between the United States and Great Britain. The line to be defined extends from the point where the 45th parallel intersects the St. Lawrence river at St. Regis through the great lakes through the mouth of the Pigeon river in the western end of Lake Superior.

The steamer Daniel B. Meacham has certainly had an unfortunate time of it since she left the builders' yard. On her maiden trip she went ashore on Passage Island, entailing a repair bill of over $40,000. Now on her second trip she strands on the rocks near Eagle river and from all accounts her repair bill will be even heavier. She went on with a cargo

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of ore while a heavy northeast sea was running. The life saving crew from Portage Lake took off her crew. The tugs were unable to move her and the steamer Charles A. Weston was sent from Duluth to help. She was finally released at 2 o'clock on Tuesday morning after about 2,000 tons of ore had been lightered. Her bottom is considerably damaged and it is necessary to keep her pumps in constant operation.

The Canadian steamer E. B. Osler which stranded during the thick smoke on Gravel Island early this week, was released after lightering 700 tons of her cargo Her bottom forward is badly damaged and her forward compartments filled with water.

It is reported that since the rigid enforcement of the rules and regulations governing the operation of small power boats, 2,500 copies of the pilot rules have been distributed by the government engineer's department at Detroit. The pamphlets are given out in pairs, two to each owner, indicating that 1,250 owners have been provided with books.

About Oct. 30 a range of fixed red lights will be established in the town of Munising at the head of South bay, Grand Island harbor, as a guide for the channel east of Grand Island. The front light will be shown from a white conical steel tower surmounted by a black octagonal iron lantern, located on the extension of eastern line of Hemlock street, about 110 ft. northeasterly from the north line of Munising avenue. The rear light will be shown from a white conical steel tower 1,150 ft., 217 deg. (S.W.3-4S.) from the front light.

The steamer G. Watson French broke a seacock and struck at Hay Point, Mud Lake, last week, causing her forepeak to fill with water. After lightering considerable of her ore cargo, she was temporarily patched up and pumped out. She then reloaded her lightered cargo and proceeded on her way.

PERSONALS.

Lieut. Commander George R. Slocum, head of the ordnance department, Puget Sound, has received his commission as commander in the United States navy.

Lieut. Col. J. C. Sanford has been ordered to Newport, R. I., to take charge of that district. He was succeeded on Delaware river work by Major Herbert Deakyne.

S. A. Thompson, field secretary of the National Rivers and Harbors Congress, is now making a tour of the great lakes in behalf of that organization, visiting commercial bodies and leading business houses. The National Rivers and Harbors Congress was formed a few years ago for the purpose of promoting a general interest in the development of our internal waterways, having no relation to any special project, but urging liberal appropriations for the continued improvement of the navigable waterways of the country.

Col. E. H. Ruffner, government engineer, has been relieved of his duties at New Orleans and transferred to New York City. His successor is Lieut. Col. Lansing H. Beach.

Rear Admiral Caspar F. Goodrich, commandant of the Brooklyn navy yard, sailed recently for England en route to Saragossa, Spain, where he will attend the celebration of the founding of the university of that city as the representative of the United States navy.

Capt. Reinertsen, master of the Norwegian steamer Henrik Ibsen, bound from Newport News to Bremerton, Wash., with government coal, has resigned his post and gone home to Norway. He is succeeded by his first officer, Capt. Strandwitz, who is well known on Puget Sound.

Richard Sweazey, of Eureka, Cal., president of the Humboldt Steamship Co., is in Seattle conferring with Max Kalish, manager of the same company regarding the repairs to the company's steamer Humboldt, recently damaged while on her way to Alaska. The Humboldt is now in the dry dock at Eagle Harbor.

Capt. Parkinson Perkinson, one of the well known masters of the Blue Funnel Line, is now master of the British steamer Teucer, one of the five mastless freighters of the Holt line operated between Liverpol and Puget Sound. Capt. "Jerry" Barwise, former master of the Teucer, has taken charge of a smaller vessel enaged in the Japan trade out of England.

Rear Admiral J. N. Hemphill, recently relieved from command of the Third Squadron of the Pacific fleet in Asiatic waters, has been assigned to duty as president of the naval examining and retiring boards, with headquarters in Boston, vice Rear Admiral C. H. Arnold, who will command the Third Squadron of the Atlantic battleship fleet.

Capt. William Lowe and Carl Lehmers, assistant inspectors in the San Francisco steamboat inspection office, have been promoted to inspectors of hulls and boilers respectively. They will be stationed at Honolulu and will have charge of the new sub-district which includes the Hawaiian Islands. Inspectors Lowe and Lehmers were temporarily in charge of the Seattle office last year, and Mr. Lehmers was at one time inspector of boilers at Juneau. The new board will proceed to Honolulu at once.

J. P. Baddenhausen has been made a member of the special rivers and harbors commission, representing the Manufacturers' Association, vice J. D. Hull, resigned on account of lack of time to devote to commission work.

J. R. Thompson, for many years general manager of the Newport Mining Co., and under whose direction the present development of the Newport mine was worked, has resigned. He will be succeeded by Luther C. Brewer, who has been superintendent of the Newport mine.

Mr. L. G. Finlay, engineer and contractor, has opened an office at No. 603 New England Building, Cleveland, for the handling of power plant equipment consisting of Corliss engines, both standard and high speed; automatic steam engines, steam turbines, gas engines, centrifugal and power pumps, feed water heaters and other machinery appertaining to power plant work. He has also been appointed agent for Ohio for the Sight Feed Oil Pump Co., of Milwaukee.

GOING OUT OF BUSINESS.

The directors of the Fulton Iron Works, San Francisco, Cal., which is one of the most widely known ship building and repair companies on the Pacific coast, recently announced that it was the intention of the company to close down the plant and wind up its affairs. This determination was reached because of a lack of business. The assets of the company are believed to be ample to meet all obligations.

The Fulton Iron Works, during the 50 years it has been in existence has built fully 500 vessels. The plant was established in 1858 by D. D. Hinckley & Co., as a small foundry, which gradually expanded into a modern ship building concern carrying hundreds of men on its pay roll. By its present owners it is estimated that the plant is worth about $1,000,000. The business has been conducted by a close corporation composed largely of the members of the family of James Spiers, who has been general manager and who is the largest stockholder.

Twenty-four midshipmen at the naval academy at Annapolis are to be allowed to resign after having failed to pass their September examinations. Eight of the delinquent students are members of the third class and 16 are members of the fourth class.

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MANCHESTER LINERS, LTD.

Speaking at Manchester recently, at the annual meeting of the Manchester Liners, Ltd., Sir Christopher Furness, M. P., had something to say on the serious competition in the shipping world. As the largest holder of preference shares, he sympathized with the shareholders on the absence of dividend, and attributed it largely to the "insance competition" between shipowners of this and other countries. The competition in the Atlantic trade, he said, was having disastrous results on the mercantile fleets, and in that connection Herr Ballin, of the Hamburg-American line, had made certain proposals to British shipowners. They could not get over the fact that for the past ten years the German shipowners had been building vessels at a very rapid rate to attack us in every trade throughout the civilized world. Now that the position had become very serious, and they had to bear losses during the present depression they were calling upon British shipowners to cry "halt" in building. As a Britisher he was in favor of the British flag flying at the masthead of the fastest vessels crossing the Atlantic, and he had always been in favor of the Cunard company going in for a program to enable them to do that, but he doubted whether it was wise for the company to have spent so large a sum on the two vessels they had built. The Cunard company could have attained their object with an expenditure of at least half a million less than the cost of the vessels.

COMPETITION IN THE ATLANTIC TRADE.

But it had brought the German shipowners to understand that the undue competition should be brought to an end, and the nations were beginning to consider if the time had not arrived when they should curtail their mercantile as well as their naval expenditure. He was sorry to see that the White Star line was going in for a large program, which would only add to the competition which existed in the Atlantic trade.

Sir Christopher also referred to the measure of support extended to the liners by Manchester merchants. He was glad to find, he said, that since their last meeting there had been formed in Manchester an association of Manchester traders, with the object of endeavoring to increase both the imports and exports direct to and from the port of Manchester, and he hoped that that association's work would result in adding to the support which the liners had hitherto received from the shippers as well as the importers in Manchester. The board were doing everything to carry out the object for which the company was formed, to develop the direct export and import trade of the port, and they would not give up that idea. At the same time, when they saw favorable opportunities for the employment of some of their tonnage, which would give to the company better earnings for the shareholders, they would consider they were quite justified in taking them. He looked forward to the time when the liners would be running more services from Manchester, however.

INCREASED COST OF WORKING SHIPS.

He also referred to the decline in trade, the increase in the expenditure on labor, and the higher price of coal. The last item, he said, meant for bunker coal to them an increase of £10,000 on the previous year. The cost of victualling had been greater through the increased cost of food, and by the food scale of the Board of Trade, which had added considerably and unnecessarily to the cost of working ships under the British flag. He was as anxious as anyone that the crew and officers should be fed well, but the scale was found to be in actual working so impracticable as to add very considerably to the cost without a corresponding advantage to the crew. The scale showed an increase and an additional cost on the food scale in operation in His Majesty's navy. Another addition to the cost of working was to be found in the Workmen's Compensation Act, with which he was in agreement. The cost of that, he thought, would not exceed £1,500 per annum more than hitherto.

The Manchester and River Plate service had been discontinued because the combined lines from Liverpool and other ports were able to give shippers regular sailings every few days, while the liners were only able to give a direct sailing once a month. Many of the shippers were most anxious to confine their shipments to the Manchester liners, but by reason of the combined lines the liners were placed at a disadvantage, and the directors had decided to relinquish the service. In view of some remarks made at the last yearly meeting the directors had come to the conclusion that it was their duty to write off full depreciation on the year's trading. They had not earned a dividend on their share capital, but, considering all things, they had no reason to be ashamed, and the liners had done quite as well as any one conversant with the keen competition and low rates of freight could expect.

PROGRESS IN WOOD PRESERVATION.

During the past few years greater advances have been made in methods of wood preservation than many people realize. Lumber users have become convinced that in the chemical treatment of timber and the consequent lengthening of the wood's life that they can save both the great cost of materials and the labor in renewals.

Just a few years ago a prominent man, in a paper read before the Pacific Coast Railway Club, called attention to the pressing need of a thorough investigation of all processes used in the preservation of wood. At that time he deplored the fact that neither the government nor corporations would offer inducements to men competent to carry out such investigations. The particular problem which he had in mind was the treatment of piling to make it resistant to attacks of marine wood borers, such as teredo and limnoria. This problem is indeed a serious one, but probably no more so than that of preserving ties, poles and mine timbers, against decay.

About the same time that this paper was presented before the Pacific Coast Railway Club, the United States forest service established an office, the duties of which would be to investigate known preservatives and processes and to devise means, if possible, whereby the present methods could be improved or cheapened, or new methods developed to take the place of those already in use. Since its inception, the office of wood preservation has made rapid strides. Up to the present time experiments have been carried on in co-operation with corporations, educational institutions, and individuals, to try out various theories in actual practice, and the results have proved of value not only to the co-operators, but to a large number of people having interests similar to those to which the particular experiment applied.

Preservative treatment is recognized as a paying proposition wherever construction timber is exposed to soil or atmospheric influences causing decay. This statement is fully attested by the rapid increase in the use of treated timber in recent years. The increase has been most notable in the case of railway cross ties. All of the larger companies in the west now use treated ties to a greater or less extent, and many of them operate their own treating plants.

It is also notable that the use of treated timber is confined principally to corporations requiring very large quantities of construction material. This is

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largely accounted for by the fact that the pressure system of impregnation in common use requires expensive retorts and machinery, and is not adapted to a plant of small capacity, thus making it impracticable for a concern using a small or moderate amount of timber to undertake treating.

Besides the plants operated by corporations for the treatment of their own construction timber, there are a number of plants which do a commercial business, but these being located at centers of distribution, where a permanent business is more readily assured, are not accessible to timber which goes direct from forest to consumer without passing through such central distribution point. For economy, the treating should be conducted at a point where additional transportation charges on account of the treating will be reduced to a minimum. The ranchman drawing his timber from the adjoining forest, should have on the ranch the means for treating his fence posts and similar materials. The mining concern should have at the mine a plant with capacity adapted to their need. An electric company whose lines extend over a considerable area and which draws its timber from various sources, may find a small portable plant best for treating poles.

For several years the forest service has been experimenting with a method of impregnating wood, which requires no expensive equipment, is simple in operation, and is adapted to a plant of any desired capacity. It is now known that all of the more porous woods can be treated successfully by this method. The method is called the "open tank" or "hot and cold bath" process. The impregnation is accomplished by thoroughly heating the timber in a tank containing a liquid substance, then running off the hot liquid and filling the tank with cold, or transferring the timber from a tank containing hot to a tank containing cold liquid, or allowing the whole to cool without change.

The theory of the process is that the air in the wood cells and intercellular spaces expands when heated and is partially expelled. Upon cooling, it again contracts, thus causing a partial vacuum, and the pressure of the air on the outside forces the liquid into the wood. The process may be applied with any of the preservatives in common use; as for instance, creosote oil and zinc chloride solution. The principle is the same whether the treating is done in a small tank holding a few fence posts and heated with a wood fire underneath, or in larger tanks fitted with steam coils for heating, pumps for handling the oil, and labor saving devices for handling the timber.

The results of the government's extensive experiments in wood preservation are published in circulars and bulletins, which along with any specific information desired, may be had by all interested persons who address the Forester at Washington, D. C.

LOSSES BY MARINE BORERS ON THE PACIFIC COAST.

Marine wood borers, which attack piling and other timbers placed in salt water, are causing the engineers in charge of the construction of marine works on the Pacific coast much concern. They are particularly destructive along the coast from Southern California to Alaska, and shippers are beginning to realize that a cheap preservative treatment for this class of material would secure a big saving. On the average, an untreated pile lasts in these waters not more than three years.

A great deal of time and money has been spent by individuals and corporations in the effort to prolong the life of these timbers. Different styles of pile casings, made of copper, zinc, cement and other materials have been constructed and patented, and at the present time piles thus encased are under observation in many localities. Results will be watched with great interest.

In addition, a great deal of work has been done in developing a preservative treatment to prevent the attack of the borers. This consists in impregnating the pile with creosote or dead oil of coal tar. When the piles are open-grained, and the oil has been of a proper quality and has been correctly injected, this plan has probably given the best results. It is true that a great many piles treated with creosote have been attacked by marine borers and destroyed, but in such cases there is usually a good reason to account for the failure. For instance, the use of timber of such density that the preservative cannot be forced into it, the use of green timber, the lack of sufficient preservative, or the use of a preservative of inferior grade may prevent the treatment from being completely successful.

Along the Pacific coast, particularly in California, large quantities of yellow pine are found. This timber embodies all of the characteristics of a good pile timber, with the one exception of durability. Western yellow pine is open-grained, and lends itself readily to a successful preservative treatment with creosote. There is no good reason, therefore, why this timber should not be used to replace Douglas fir wherever the yellow pine can be obtained at a reasonable cost. Details of the work of the forest service along this and similar lines can be obtained on request from the forester, at Washington.

WHITE STAR DEBENTURES.

The Oceanic Steam Navigation Co., known as the White Star line, is about to issue first mortgage debentures to the extent of $6,250,000. The debentures will be of $500 each, will be issued at 97½, and will carry interest at 4½ per cent.

The four steamers which are under construction for the company by Harland & Wolff, at Belfast, two for the Southampton-New York service and two for the Canadian traffic, are estimated to cost $18,000,000, and it is to furnish the capital required for these additions that the issue is to be made. The debentures are to be secured by a first charge over the whole of the company's fleet, including the new vessels as they are finished.

The two new liners which are to be employed in the New York service are to be the largest ships afloat, exceeding in size the Lusitania and Mauretania of the Cunard Steamship Co.'s fleet. The new vessels will each have a displacement of 60,000 tons and will be from 900 to 1,000 ft. long.

These gigantic vessels will be propelled by a combination of reciprocating and turbine engines, estimated to produce a speed of 21 knots.

The keel for the first of these, which is to be named the Olympic, has been laid recently, and it is expected that she will be ready for launching in the fall of 1910. The companion vessel will in all probability be called either the Hellenic or Titanic.

Secretary Straus of the department of commerce and labor, has awarded the privilege of furnishing food and maintaining a restaurant at Ellis Island immigrant station until June 30, 1911, to Fritz Brodt, of New York, who was the lowest bidder among eight, including the present holder of the privileges, Harry Balfe.

The American ship Astral, owned by the Standard Oil Co., which left Baltimore, Oct. 1, bound for San Francisco with 5,000 tons of coal for the navy, was towed into New York recently after having encountered a severe hurricane in which every sail the ship possessed was stripped from her and the three topgallant masts carried away. She also listed to port 23 degrees.

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PACIFIC COAST NOTES.

Office of the MARINE REVIEW,
302 Pioneer Bldg., Seattle, Wash., Oct. 23.

The contract for repairing the United States cable ship Burnside has been awarded by the quartermaster general of the United States army to the Heffernan Engine Co., Seattle, who will dock the Burnside in its dock at Quartermaster Harbor, near Tacoma. The contract price for the repairs is $9,288 with a time limit of 12 working days. Other bids were as follows: Hall Brothers Marine Railway & Ship Building Co., $11,075, 15 days; Moran Co., $9,872, 18 days. The specifications call for fitting up the Burnside's tail shaft, boring out the propeller, placing new strainers and fitting a new shoe on the forefoot 26 ft. in length. The rudder must also be taken down and rebuilt and minor repairs made to the machinery. The Heffernan Dry Dock Co. has made arrangements also to repair the British steamer Strathord, now due at San Francisco. The Strathord was ashore last summer on the coast of Ecuador and temporary repairs were made at that time. The same company has recently closed a contract for the repair of a vessel now coming to Puget Sound from South America. The Norwegian steamer Selja is now in the dock at Quartermaster Harbor, being cleaned and painted and receiving minor repairs. The Selja is the largest steamer so far that has been handled in the Heffernan dock and with one exception is the longest Norwegian steamer afloat.

J. W. Manka, master of the schooner Blakeley, which recently collided with the Pacific Coast Steamship Co.'s steamer Cottage City, near Seattle, has instituted action in admiralty against the American Surety Co. of New York and the Pacific Coast Steamship Co. of Seattle. Damages in the sum of $30,000 and demurrage are claimed. The local steamboat inspectors are now holding an inquiry into the causes of the collision. Attempts are being made to establish the fact that the Cottage City's steering gear failed to work at a critical moment.

According to a decision rendered Oct. 17 by Judge Jeremiah Neterer, in the case of Stone & Webster vs. the Insurance Co. of North America, the court holds that the fact that a coastwise vessel gets off her course does not mean that she has left the coastwise trade. The insurance company was sued for $834, due by reason of goods lost in the wreck of the steamship Valencia. The defense of the insurance company, that the steamer was off her course at the time of the wreck and therefore not engaged in coastwise business, was overruled by the court, which decided in favor of the plaintiff company.

J. C. Ducken and P. F. Nordby, of Port Orchard, Wash., have begun the construction of a 520-ft. dock at Port Orchard. The end of the dock will be furnished with a warehouse and waiting room. The pier will have a driveway 20 ft. wide. At the shore end will be constructed a two-story store room. The dock will cost $4,000 and the store room $6,000.

Arrangements are being made by eastern capitalists, represented by Mr. Morrison, now at Bellingham, Wash., to establish a new line of freight steamers between Puget Sound ports and Australia. The promoters intend to ship lumber and bring return cargoes of wool. The project is said to be in connection with the Chicago, Milwaukee & St. Paul railway, but this cannot be confirmed.

The most severe storm of the year hit Astoria, Ore., Oct. 19, and did considerable damage to shipping. The wind came in from the northwest with great velocity. At least 12 fishing boats and some large schooners are reported wrecked.

The Kitsap County Transportation Co., operating a line of passenger and freight steamers between Seattle and Kitsap county ports, is planning on building a new steamer for fast passenger service. This company recently sold the Sentinel to the Merchants Transportation Co., of Tacoma, and is now one boat short.

The Moran Co., Seattle, are negotiating with the navy department for the construction of some of the new submarines authorized at the last congress. The local members of congress have requested the secretary of the navy to arrange to have a fair proportion of these boats constructed on the Pacific coast.

Although the strike of the longshoremen of the north Pacific coast has been practically broken for weeks, it was not until Oct. 20 that the local union would admit defeat. At a special meeting of the union the strike was officially declared off. The strike was called July 20 and waged bitterly for some time. The net result of the trouble is that a strict open shop policy has been adopted by all Puget Sound stevedoring firms.

SALVING THE YANKEE.

Mr. John Arbuckle, the New York sugar merchant and well known philanthropist, who has taken a contract from the navy department to try to float the stranded cruiser Yankee by means of a compressed air process, has begun the work. He is assisted by Messrs. W. W. Withspoon and R. O. King, two engineers who succeeded in floating the Canadian Pacific steamer Mount Temple by the same process after she had stranded in a dangerous position on Iron Bound Ledges last spring.

A force of carpenters has made the body of the Yankee into a series of watertight compartments into which compressed air will be forced generated by a plant having a capacity of 5,000 ft. per minute. This air being lighter than water will force the water out and make the vessel correspondingly more buoyant, after which it is expected that the Yankee will rise sufficiently to permit of drawing her off the bottom.

It is the general opinion in naval circles that the Yankee will never again be fit for active service but will be useful only in the capacity of a receiving ship, but the experiment is being watched with much interest. Should it be successful it is probable that the navy department will adopt the use of compressed air attachments on battleships.

FUMIGATION DISCONTINUED.

The surgeon general of the Marine Hospital service has instructed his officers to discontinue the fumigation of outgoing vessels at San Francisco.

For more than a year all vessels leaving that port had been disinfected with a view to killing rats to prevent them from conveying bubonic plague to other ports, either domestic or foreign.

There have been no deaths from plague in San Francisco for eight months and although 5,000 rats have been trapped or killed and examined each week, no infected rat has been found since June 13 with the exception of one in July and one in August.

The submarine Octopus arrived at the Delaware breakwater at 7:20 A. M. Oct. 8, after having left Point Judith on Oct. 3 in a race with the submarines Cuttlefish, Viper and Tarantula.

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ATLANTIC COAST NOTES.

Office of the MARINE REVIEW,
Room 1005, No. 99 West St.,
New York City.

The old cup defender, and wrecked treasure hunter, Mayflower, according to reports of incoming New York shipping, is now a drifting derelict somewhere on this side of the Atlantic. The steamship Vincenzo-Di-Giorgio, which arrived at New York on Monday from Jamaica, reports having sighted the unfortunate craft on Oct. 15, about 150 miles south of Hatteras. According to report the Mayflower seemed to be in good condition so far as the hull is concerned. Her abandonment by the crew of buried-treasure-hunting students was due to the loss of her masts, which were carried away in a hurricane. It is interesting to note that treasure hunting, so far as the late crew of the Mayflower is concerned, is at a standstill.

Fire broke out early Monday morning on the tug Samuel Gedney, at Camden, N. J., the deckhouse and other parts of the upper section of vessel being completely destroyed. Owing to the inaccessible position of the Gedney the fire department were unable to render much assistance. The tug is owned by the River & Harbor Improvement Co.

The steamship Oracabassa, of the United Fruit Co., arrived at New Orleans on Friday, 60 hours overdue. The vessel had suffered severely in a hurricane encountered in the Caribbean sea and which lasted two days. During the storm the engines had become deranged, but were repaired and trouble averted.

The three-masted schooner Flora Rogers, from Georgetown, S. C., for New Haven, was driven ashore on Bodies Island, N. C., 90 miles south of Cape Henry, on Friday, and now lies a complete wreck on the beach. Her cargo of lumber is reported washing ashore as the vessel breaks up. Captain Lowry, of Bath, Me., his wife and crew of six men were rescued by life savers of the Bodies Island and Nag's Head stations. The breeches buoy was used as the seas were too high to launch surf boats.

The Coastwise Transportation Co., owner of a number of vessels, proposes to reorganize the company. It is proposed to cancel the entire common stock, then reduce the total capitalization from $3,000,000 to $1,500,000. The company owns a number of large coal carrying schooners, and the reorganization is due to the depression in the shipping trade and the loss of the big seven-masted schooner Thomas W. Lawson on the Scilly Isles last spring. The Lawson was a total loss, and was not insured.

At a meeting of the board appointed under an act of congress to make regulations governing the question of the limiting of the length of tow lines on ocean-going barges, to be held in New York City on Nov. 9 and 10, shipping interests will be given an opportunity to express their views on the matter. The board is composed of Rear Admiral Marix, chairman of the lighthouse board; George Uhler, supervising inspector general of steamboat inspection service, and Eugene T. Chamberlain, commissioner of navigation.

Regulations limiting the length of the sea-going and inland tows will be prepared, such regulations, when approved by the secretary of commerce and labor, are to have the force of law, and masters of towing vessels will be liable to suspension or revocation of their license for any willful violation of same.

Owing to the gales which have prevailed along the coast during the past week sailing vessels of all rigs have been forced to postpone sailing to await more favorable weather. At the close of last week a fleet of nearly 100 vessels was at Delaware Breakwater, many of which had been there most of the week. In some cases tugs which had outward-bound vessels in tow had to return for fresh bunker supplies.

The steamship Ligonea, which arrived at Boston on Sunday, met with an unusual happening in the vicinity of Diamond Shoals lightship. According to report a gigantic wave swept onto the deck of the vessel, and on passing left numberless fish squirming aboardship. The crew selected such fish as were judged to be eatable, the remainder being thrown back into their native element. A 7-ft. porpoise went by the board.

The board of directors of the Maritime Exchange has authorized the construction of a reporting station on the upper wharf of the Gloucester Ferry Co.

The flotilla of lightships and lighthouse tenders now en route to the Pacific, according to a cablegram received on Monday by the United States lighthouse board, sailed from Pernambuco for Montevido on Sunday.

At the presentation of medals to members of the New York fire department, on Monday, the spectators were treated to an exhibition of fireboat drill. The little fire-fighting steamers maneuvered on the river, all nozzles being in action.

The United States gunboat Castine, which will replace the cruiser Yankee, fast on the rocks in Buzzard's Bay, has arrived at the New York navy yard to be placed in commission.

The British steamship Menominee, which left Boston Friday for Philadelphia, was compelled to anchor in the harbor on account of defective steering gear. Repairs were made and the vessel proceeded.

The crew of the steamship Aryan, which has arrived at Long Beach, Cal., after a voyage of 174 days from New York, mutinied on the passage. The mate, A. J. Lund, was badly injured and unconscious when the ship arrived, and may die. Sixteen of the crew have been placed under arrest.

The crew of the Moriches life saving station, near Eastport, L. I., have reported great masses of wreckage washed up on the beach during the recent storm. The wreckage is supposed to be that of a sailing vessel, but there is nothing to indicate the name of the craft.

SCOUT CRUISER MAKES 26.1 KNOTS.

The scout cruiser Chester, which is equipped with turbine engines, in her final trials off Newport, R. I., Oct. 22, maintained a speed of 26.1 knots for four hours and on the 12-hour endurance and coal consumption trial she made an average speed of 23 knots.

Rear Admiral McLean, president of the board of inspection and survey, reported to the secretary of the navy that the Chester's guns and machinery were in a very satisfactory condition and that the ship behaved very well in a rough sea.

Capt. Wm. Peace, a veteran lake skipper, died at Toronto recently. He was 80 years old.

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MEETING OF OHIO VALLEY IMPROVEMENT ASSOCIATION.

The Ohio Valley Improvement Association held its annual convention at Louisville, Ky., Oct. 22. The attendance was very good, every city of importance between Pittsburg and Cairo being represented.

John L. Vance, of Columbus, president of the association, declared that congress is bound to appropriate the entire amount needed for carrying out the 9-ft. stage project for the Ohio river, $64,000,000, and that the association will demand that this be done at the next session of congress. The river improvement plans have been approved by United States engineers.

Addresses were made by Major W. L. Sibert, member of the Panama canal commission, who spoke in favor of the present plans of locks and dams for the Ohio as against the building of reservoirs; W. K. Kavanaugh, of St. Louis, president of the Lake-to-the-Gulf Deep Waterways Association, who spoke of the proposed national bond issue for carrying out improvements and urged that all waterways associations work in harmony. George W. Theiss, of Pittsburg, president of the Monongahela River Consolidation Coal & Coke Co., gave many figures proving the commercial losses sustained owing to the present condition of the river. Hon. Joseph E. Ransdell, of the National Rivers and Harbors congress, in his address asserted that unless the railroads are regulated and prevented from carrying out their plans for suppressing river traffic the improvement of our waterways will be of little advantage.

JAPANESE LINE NEEDS SUBSIDY.

Rempei Kondo, president of the Nippon Yusen Kaisha, the great Japanese steamship Co., has been quoted recently as saying that if the Japanese government withdraws its subsidies from the European, Victoria and San Francisco services, those lines will have to be abandoned, and the Japanese flag will no longer be seen in the trans-Pacific trade. Some people have said that were these services abandoned by the Nippon Yusen Kaisha and the Toyo Kisen Kaisha they would be taken up by the Osaga Shoshen Kaisha, but the Osaka Shosen Kaisha cannot afford to run steamers at a loss, any more than other companies can. It would be simply a surrender of the lines to other flags.

The question of shipping subsidies will be brought up at the next session of the diet. The *Kokumin* says it may sound rather strange that some Japanese newspapers and a section of the public are now proposing the advisability of reducing the amount of the state subsidies to the various shipping companies at a time like the present when the shipping business is unprecedentedly dull. Reviewing the history of Japanese shipping enterprises during the past 20 years, it is shown that the authorities concerned had only adopted temporizing measures so as to suit the requirements of the occasion, and that the shipping companies had acted in conformity with official instructions, the result being that steamers had increased in number and nothing else. Instances were not few that the Japanese shipping companies, backed by the great subsidies, had prepared plans far beyond their power and had unnecessarily entered into competition with foreign as well as Japanese concerns.

The conference of tramp steamer owners, held in Tokio on Sept. 16, did not result in any agreement. The Tokio representatives introduced a proposal for taking the charter value of the ships as a pooling basis, but the Osaka owners frankly advocated union for the purpose of raising freights. Both proposals had to be withdrawn, but the feeling of the meeting seemed to be in favor of the latter.

JACKSONVILLE HAS 24 FEET OF WATER.

A test has just been made by the government dredge Florida from which it has been demonstrated that there is a minimum depth of 24 ft. of water in the St. Johns river from Jacksonville, Fla., to the sea.

Capt. George R. Spalding, army engineer in charge of the government work in the district had command of the test. He says:

"As a result of this trip it is demonstrated that without question there is a 24-ft. channel from Jacksonville to the sea. As the continuous northeast winds have caused abnormally high water conditions in the river, proper deductions were made from the actual readings to the bottom of the sweep to allow for these conditions, and in order that these deductions might be accurately made, a launch accompanied the dredge Florida on the entire trip and read the gages at various points on the river, reporting the reading immediately to the dredge."

Members of the river and harbor committee of the Board of Trade, members of the Bar Pilots Association of the Board of Pilot Commissioners and well known shippers were present during the trip and were well pleased and thoroughly satisfied that Jacksonville is now ready to invite business from deeper draught vessels than have heretofore come to this port for cargo.

The French minister of marine, M. Gaston Thomson, resigned his post Oct. 19 as the result of a vote in the chamber deploring the negligence in his department as indicated by the disasters on the Iena and other war ships. During the past two years there have been a large number of serious accidents in the French navy, the most notable of which was the blowing up of the battleship Iena on March 12, 1907, at Toulon, when more than 100 officers and men were killed.

BIDS FOR REMOVING WRECK.

Bids received by Col. George A. Zinn, corps of engineers, United States army, Portland, Me., opened Oct. 12, for removing wreck of schooner Annie L. Henderson, were as follows:

Rowe Bros. Co., Richmond, Me.	$2,495.00
Philip H. Doyen, South Portland, Me.	1,290.00
James F. Spellman & Sons, Bangor, Me.	937.50

BIDS FOR REPAIRING VESSEL.

Bids received by the lighthouse inspector at Boston, Mass., opened Oct. 6 for repairing light vessel No. 41, were as follows:

*P. F. Wood Boiler Works, New Bedford, Mass.	$596.50
New Bedford Boiler & Machinery Co., New Bedford, Mass.	652.50
Hodge Boiler Works, East Boston, Mass.	640.00
Bertelsen & Peterson Engineering Co., East Boston, Mass.	698.00

*Accepted.

BIDS FOR WHARF AND SHED.

Bids received by the lighthouse engineer at Mobile, Ala., opened Oct. 2, for a buoy wharf and depot shed at Fort San Jacinto, Galveston Harbor, Tex., were as follows:

Chapman & Gracey, Galveston, Tex.	$ 7,775
*Charles Funk, Galveston, Tex.	6,950
Thomas McHenry & Co., Galveston, Tex.	8,637
George W. Brown, West Palm Beach, Fla.	14,300

*Accepted.

REPAIRS TO TENDER.

Bids received by the lighthouse engineer at Tompkinsville, N. Y., opened Oct. 9, for making repairs to the lighthouse tender Iris, were as follows:

*Staten Island Ship Building Co., Port Richmond, N. Y.	$929
F. A. Verden Co., New Brighton, N. Y.	946
W. & A. Fletcher Co., Hoboken, N. J.	973

*Accepted.

BIDS FOR REPAIRING VESSEL.

Bids received by the lighthouse inspector at Boston, Mass., opened Oct. 1, for making repairs to light vessel No. 47, were as follows:

*Bertelsen & Peterson Engineering Co., East Boston, Mass. (Copper sheathing, 85 cents.)	$ 935
New Bedford Boiler & Machinery Co., New Bedford, Mass. (Copper sheathing, $1.26 and $1.86)	845
Fore River Ship Building Co., Quincy, Mass. (Copper sheathing $1.50)	1,134
P. F. Wood Boiler Works, New Bedford, Mass. (Copper sheathing $1.07)	1,172

*Accepted.

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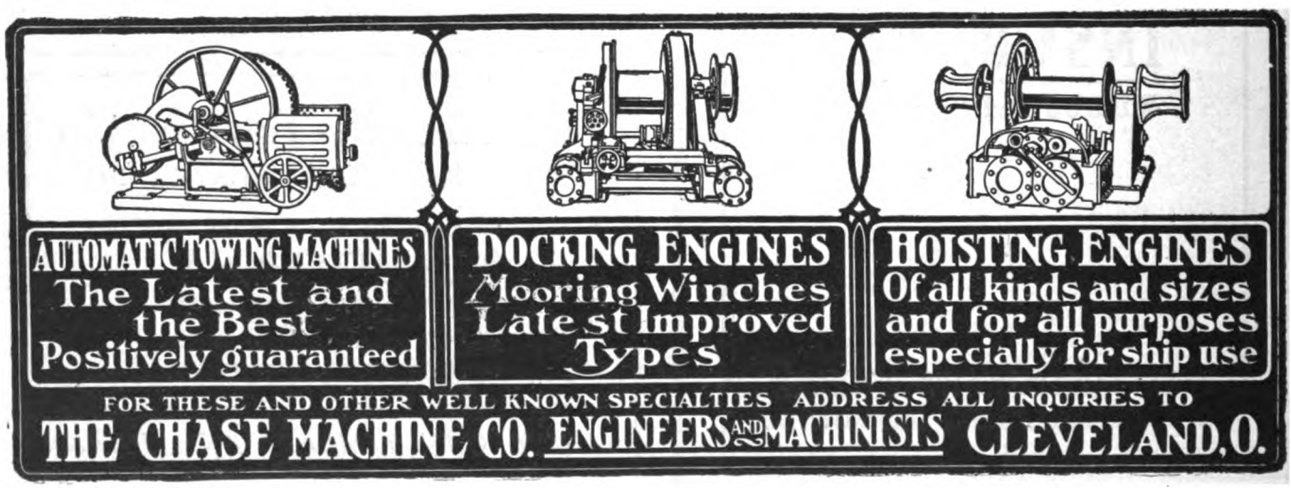
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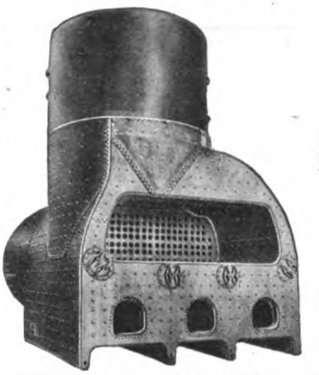

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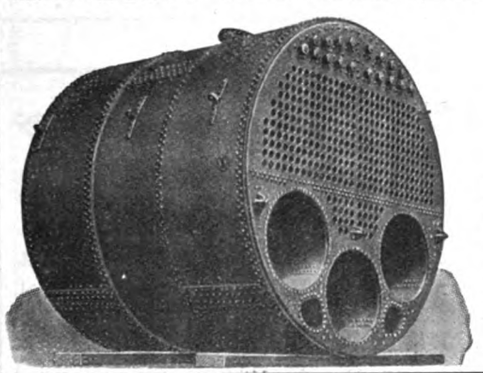

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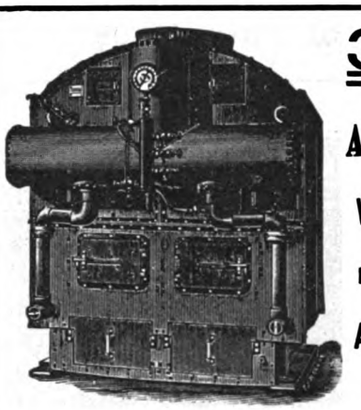

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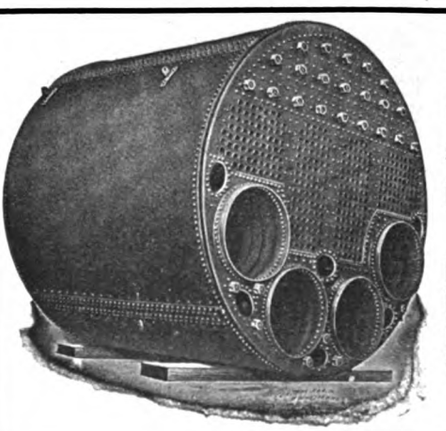

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